IRON AGE
SEMI-ANNUAL INDEX
January — June 1978
Volume 221

IRON AGE SEMI-ANNUAL INDEX

SUBJECT
A

A-T-O INC.
Business Execs Underpaid, Says A-T-O's Figgie, May 29 p 15

A. V. C. CORP.
Fastener Makers Won't Abandon Import Fight, May 8 p 11

YUZURU ABE
From Japan Comes Hints for a Steel Quota Scheme, Mar 13 p 11
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29

ACF STEEL BALING CO.
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

CLAUDE ACKER
NC-CAD CIM Report, by J. B. Pond, Jan 16 p 35

ACME-CLEVELAND CORP.
Auto Retooling is Aiding Machine Tool Orders, Jan 9 p 11
Automakers are Keeping Machine Tool Builders Busy, Mar 6 p 9
Don't Short Change R & D Spending - It Pays Off, Feb 27 p 16
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

ACME RESIN CORP.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

ACOUSTIC EMISSION
High Technology Erupts on the NDT Scene, by R.R. Irving, May 15 p 39

ADAMAS CARBIDE CORP.
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

ADDISON MACHINE ENGINEERING, INC.
Why Business Keeps Turning Away from the Cities, Apr 3 p 16

ADHESIVE BONDING
Adhesives Poised to Steal More of Joining Market, by J. J. Obrzut, Apr 24 p 46

ADHESIVES
Adhesives Poised to Steal More of Joining Market, by J. J. Obrzut, Apr 24 p 46
How the Auto Industry Selects Adhesives, Apr 10 p 106

AERO-GO, INC.
Palletizing . . . Hot Trend in Automatic Parts Handling, by J. B. Pond and B. H. LeCerf, Apr 24 p 43

A. F. INDUSTRIES, INC.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

AEROSPACE
Adhesives Poised to Steal More of Joining Market, by J. J. Obrzut, Apr 24 p 46
Advanced Materials Given Room to Fly in Aerospace, by B. H. Le Cerf and A. M. Greene, June 19 p 53
Aircraft Makers Prepare for Smooth Take-off, by B. H. LeCerf, June 12 p 32
Breakthrough Recharges Electric Car's Future, Mar 27 p 16
Futuristic Combat Planes, Apr 10 p 105
Metal Spinning for a Special Nose Job, Feb 27 p 33
Pan Am Picks L-1011s for Its Long Range Fleet, Apr 24 p 14
QC Circles Spur Productivity, Improve Product Quality, by R. R. Irving, June 5 p 61
Turboprop Engines May Return to Airline Scene, Jan 16 p 13

WILLIAM M. AGEE
Metals Merger Activity Continues to Swirl, May 1 p 10

AIR BAGS
Eaton's Interest in Air Bag Market Evaporates, Jan 30 p 15

AIRCO, INC.
New Family Adopts E-Brite Stainless, by D. A. Van Cleave, Mar 27 p 47
Union Carbide, Domestic Ferrochrome Producers Clash, Jan 30 p 39

AIRCRAFT
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53
Aircraft Makers Prepare for Smooth Take-off, by B. H. LeCerf, June 12 p 32
Futuristic Combat Planes, Apr 10 p 105
McDonnell Beats Boeing for Air Force Contract, Jan 9 p 13
Pan Am Picks L-1011s for Its Long Range Fleet, Apr 24 p 14

AIRCRAFT ENGINES
Turboprop Engines May Return to Airline Scene, Jan 16 p 13

AIR POLLUTION
Amended Clean Air Act Brings Clouds of Confusion, by G J. McManus, May 1 p 25
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39
Clean Water and Air Cost an Arm and a Leg, Mar 27 p MP-3
A High-Flying Pollution Control System, Mar 27 p MP-40
How Restrictive is EPA's Clean Air Act? Mar 13 p 18
"Lowering the Boom" on Coke Oven Emissions, Mar 27 p MP-35
New Copper Standard Will Hit Copper Hard, May 15 p 20
Pollution Control Recall May Cost AMC over $1 Million, May 29 p 17
Radials, Tinted Glass and a 50,000 Mile Gas Gap, May 8 p 35
Republic's Cleanup Turns into a Buildup, Mar 27 p 11
Steel Put Record Amount into Pollution Control in '77, May 1 p 11
Steel Seeks Compromise on Air Pollution Rules, June 26 p 14
Steel Summary: Bridging the Gap? June 5 p 92
They Designed a Vehicle to Curb Coke Emissions, by G. A. Weimer, Mar 27 p MP-22
This Comes as a Surprise? by Gene Beaudet, Mar 6 p 3

AIR TRANSPORT ASSN. OF AMERICA
Aircraft Makers Prepare for Smooth Take-off, by B. H. LeCerf, June 12 p 32

AJAX MAGNATHERMIC CORP.
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

ALAN WOOD COATED METALS, INC.
Ask Not for Whom the Gavel Tolls, by Tom Dulaney, May 29 p 33

ALAN WOOD STEEL CO.
Alan Wood Begins a 'Life or Death' Sale, by Tom Dulaney, Mar 20 p 34
Ask Not for Whom the Gavel Tolls, by Tom Dulaney, May 29 p 33
Bankruptcy Court Orders Alan Wood Auction, Feb 6 p 91

ALCAN ALUMINUM CORP.
Alcan Plans to Be a Smart Shopper, Apr 3 p 63
Aluminum Producers Waste No Time in '78, Jan 30 p 41
Can Sheet Keeps Aluminum Rolling, May 29 p 54
What's New for Aluminum in '78, by R. J. Regan, Jan 16 p 22

ALCAN ALUMINUM LTD.
Alcan Plans to Be a Smart Shopper, Apr 3 p 63
Aluminum Producers Happy as Clams, Mar 6 p 61
Aluminum Producers Scramble to Add Capacity, Mar 13 p 89
Aluminum's Climbing Capacity Keeps Production Up, Feb 6 p 89
Carribean Bauxite Loses Ground in U.S. Markets, by R. J. Regan, Mar 6 p 30
More Aluminum Products Get a Price Boost, Feb 27 p 39
What's New for Aluminum in '78, by R. J. Regan, Jan 16 p 22

RICHARD ALCORN
Why Service Center's Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

JOHN ALFONSE
Ask Not for Whom the Gavel Tolls, by Tom Dulaney, May 29 p 33

ALLEGHENY LUDLUM METALS GROUP CO.
New Family Adopts E-Brite Stainless, by D. A. VanCleave, Mar 27 p 47

ALLEGHENY LUDLUM STEEL CORP.
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15
Import Quotas on Specialty Steel Will Stay, Jan 30 p 14
Industry Wants Tighter Buy-American Rules, Apr 3 p 14
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59
New Family Adopts E-Brite Stainless, by D. A. Van Cleave, Mar 27 p 47
Power Drain Threatens Thousands of Jobs, Feb 20 p 65
Producers React Slowly to A-L's Stainless Hike, May 22 p 107
Steelmakers Stretch to Overcome Coal Strike, Mar 20 p 9
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

CHARLES R. ALLEN
Nothing is More Crucial than Knowing Real Costs, Jan 23 p 18

ALLEN-BRADLEY CO.
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99
NC-CAD CIM Report, by J. B. Pond, May 8 p 43

ALLIANCE MACHINE CO.
They Designed a Vehicle to Curb Coke Emissions, by G. A. Weimer, Mar 27 p MP-22

ALLIED CHEMICAL CORP.
Needed by the Board - An Audit Committee, Apr 10 p 49

ALLIED INDUSTRIES, INC.
Plate Fabricators: Deep in the Heart of Houston, by R. R. Irving, May 8 p 59

ALLIS-CHALMERS CORP.
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15
Energy Makers May Turn More to Water Power, Mar 13 p 17
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27
Metalworking's Winners in Financial Reporting, Mar 13 p 28
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

ALLISON DIV.
Driving Market Forces Keep Diesels Going, by G. A. Weimer, June 26 p 21

ALLOYS
An Advance in Superalloys, June 5 p 64
Aluminum Shows Auto Market Proof of Weldability, May 1 p 46
Annual Statistical Review, Jan 2 p 93
Beryllium Nickel Strip Gets Better With Age, by B. H. LeCerf, May 22 p 84
Coal Gasification: Steel's Toughest Environment, by R. R. Irving, Mar 6 p 35
Increased Filtering R & D Screens Out Snags, Apr 24 p MP-3
New Family Adopts E-Brite Stainless, by D. A. Van Cleave, Mar 27 p 47

ALLSTEEL EQUIPMENT CO.
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

ALMA DESK CO.
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

MARTIN V. ALONZO
Managers Seek Best Way to Adjust for Inflation, by P. J. Cathey, Feb 6 p 47

AL TECH SPECIALTY STEEL CORP.
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59
New Family Adopts E-Brite Stainless, by D. A. Van Cleave, Mar 27 p 47

ALTER CO.
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

R. F. ALTOBELLI
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

ROBERT A. ALUKONIS
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

ALUMAX INC.
Alcan Plans to Be a Smart Shopper, Apr 3 p 63
Alumax is Expanding from Coast-to-Coast, Mar 27 p 78
Aluminum Producers Scramble to Add Capacity, Mar 13 p 89
Aluminum's New Price is Still Airtight, May 15 p 60

ALUMAX MILL PRODUCTS, INC.
Alumax is Expanding from Coast-to-Coast, Mar 27 p 78

ALUMINA
Sir Charles Holds Court on Australia's Future, June 12 p 57

ALUMINUM
Across the Atlantic, Aluminum Stays Afloat, by R. J. Regan, Apr 24 p 27
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53
Alcan Plans to Be a Smart Shopper, Apr 3 p 63
Alcoa's Profits Up, Despite Dip in Shipments Tonnage, May 1 p 55
Alumax is Expanding from Coast-to-Coast, Mar 27 p 78
Aluminum and Steel Tied in Can Market, June 26 p 15
Aluminum Auto Market Race Speeds Up, Mar 13 p 91
Aluminum Distributors Top Producers in Shipments, Jan 16 p 71
Aluminum Makers Up Output; Alcoa Ups Can Sheet Price, Jan 23 p 41
Aluminum Output Rate Sparks Memories of '74, Apr 17 p 79
Aluminum Producers Scramble to Add Capacity, Mar 13 p 89
Aluminum Producers Stay Happy as Clams, Mar 6 p 61
Aluminum Production Rate Moves Close to 90 Pct, Jan 9 p 41
Aluminum Service Centers Stay Ahead of Producers, June 19 p 95
Aluminum Shows Auto Market Proof of Weldability, May 1 p 46
Aluminum Smelter Glut Puts Pressure on Price, Feb 20 p 65
Aluminum Stocks Begin to Swell, Feb 13 p 65
Aluminum's Climbing Capacity Keeps Production Up, Feb 6 p 89
Aluminum's Price Seeks Its Own Level, June 12 p 59
Sir Charles Holds Court on Australia's Future, June 12 p 57
Anti-Inflation Jawbone Was Slack on Aluminum, May 22 p 104
Can Sheet Keeps Aluminum Rolling, May 29 p 54

Carribean Loses Ground in U.S. Markets, by R. J. Regan, Mar 6 p 30
Aluminum's New Price is Still Airtight, May 15 p 60
Car Bodies Fatten Aluminum Shipments, May 15 p 17
Coal Strike Reins '78 Aluminum Production, Mar 20 p 63
Imports Begin to Cramp Aluminum's Style, June 5 p 92
Increased Filtering R & D Screens Out Snags, Apr 24 p MP-3
Kaiser Reports Slight Shipment Loss, Apr 24 p 63
More Aluminum Products Get a Price Boost, Feb 27 p 39
1986 Aluminum Capacity Won't Meet Demand - Battelle, Jan 30 p MP-1
Nonferrous Energy Looms as Common Obstacle, Jan 2 p 151
Pricing Rigid Aluminum Sheet for Financial Performance, June 19 p 46
"Quick Pulse" Puts Finger on Aluminum Shipments, May 8 p 88
Scrap Aluminum Pressed into Metalworking Service, June 26 p 40
Smart Shoppers Can Find Bargain-Priced Aluminum, June 26 p 54
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Total Aluminum Recycling System Aids Steelmakers, by G. A. Weimer, June 19 p MP-23
Tubing Design Proves Very Cool Blend, May 1 p 41
U. S., Canada Lead Aluminum Output Parade, May 8 p 87
War and Peace Study Plots Aluminum's Future, by E. W. Bowers, May 1 p 30
"Warm Forming" Aluminum Extends Usage in Cars, Mar 20 p 42
What's Different for Aluminum in '78, by R. J. Regan, Jan 16 p 22
Why Service Center's Role is More Critical Now, by K. W. Bennett, Apr 17 p 39
Will Jamaica Make Advance Levies a Habit? Mar 27 p 73
World Aluminum Smelters Stay Red-Hot in Winter, Apr 10 p 159

ALUMINUM ASSN.
Aluminum Auto Market Race Speeds Up, Mar 13 p 91
Aluminum Distributors Top Producers in Shipments, Jan 16 p 71
Aluminum Output Rate Sparks Memories of '74, Apr 17 p 79
Aluminum Production Rate Moves Close to 90 Pct, Jan 9 p 41
Aluminum's Climbing Capacity Keeps Production Up, Feb 6 p 89
Coal Strike Reins '78 Aluminum Production, Mar 20 p 63
The Great Can Fight May Go the Distance, Mar 20 p 65
Imports Begin to Cramp Aluminum's Style, June 5 p 92

ALUMINUM CO. OF AMERICA
Alcoa's Profits Up, Despite Dip in Shipments Tonnage, May 1 p 55
Aluminum Auto Market Race Speeds Up, Mar 13 p 91
Aluminum Distributors Top Producers in Shipments, Jan 16 p 71
Aluminum Makers Up Output; Alco Ups Can Sheet Price, Jan 23 p 41
Aluminum Producers Waste No Time in '78, Jan 30 p 41
Aluminum Service Centers Stay Ahead of Producers, June 19 p 95
Aluminum Shows Auto Market Proof of Weldability, May 1 p 46
Aluminum Smelter Glut Puts Pressure on Price, Feb 20 p 65
Aluminum Users Stay Happy as Clams, Mar 6 p 61
Aluminum's New Price is Still Airtight, May 15 p 60
Carribean Bauxite Loses Ground in U. S. Markets, by R. J. Regan, Mar 6 p 30
More Aluminum Products Get a Price Boost, Feb 27 p 39
Pricing Rigid Aluminum Sheet for Financial Performance, June 19 p 46
Sir Charles Holds Court on Australia's Future, June 12 p 57
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
What's New for Aluminum in '78, by R. J. Regan, Jan 16 p 22

ALUMINUM INDUSTRY
Aluminum Makers Up Output; Alcoa Up Can Sheet Price, Jan 23 p 41
Aluminum Producers Scramble to Add Capacity, Mar 13 p 89
Aluminum Producers Stay Happy as Clams, Mar 6 p 61
Aluminum Producers Waste No Time in '78, Jan 30 p 41
Aluminum Production Rate Moves Close to 90 Pct, Jan 9 p 41
Carribean Loses Ground in U. S. Markets, by R. J. Regan, Mar 6 p 30
Coal Strike Reins '78 Aluminum Production, Mar 20 p 63
"Quick Pulse" Puts Finger on Aluminum Shipments, May 8 p 88
Steel Hit Bottom in '77; Nonferrous Had Mixed Year, by P. J. Cathey and R. J. Regan, Apr 24 p 35
What's New for Aluminum in '78, by R. J. Regan, Jan 16 p 22

ALUMINUM MILLS, INC.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

ALUMINUM OXIDE
Total Aluminum Recycling System Aids Steelmakers, by G. A. Weimer, June 19 p MP-23

A. L. ALVES
Robot Ends Worker Fatigue in Hot PM Forging, Jan 23 p 32

AMAX INC.
Keep Cash Flowing through Capital Spending, May 1 p 21
Managers Seek Best Way to Adjust for Inflation, by P. J. Cathey, Feb 6 p 47
Nickel Producers Wish the Future Were Now, Mar 13 p 90
Recyclers Can Help When Copper Runs Low, Mar 27 p 79
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27

AMAX NICKEL, INC.
Competition is Killing Nickel, by R. J. Regan, May 15 p 29

AMCHEM CO.
Coil Coaters Seek a 'Perfect' Galvanized Steel, by J. J. Obrzut, May 1 p 37

AMERICAN BRIDGE DIV.
Construction's Next Build-Up Will be Harder to See, by Joe Barks, May 29 p 28
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

AMERICAN BUREAU OF METAL STATISTICS
Copper Movement Not Enough to Spur Price Improvement, Jan 23 p 39
Lead Stocks Begin to Climb as '77 Closes, Jan 16 p 71

AMERICAN CAN CO.
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

AMERICAN CAST IRON PIPE CO.
Magnesium Helps Steel Get the Sulfur Out, May 22 p MP-19

AMERICAN COUNCIL OF INDEPENDENT LABORATORIES
Consumer-Demands Change NDT Practice, Jan 30 p 32

AMERICAN ENTERPRISE INSTITUTE
Bearing Down in the Right Place by Gene Beaudet, Mar 20 p 3

AMERICAN FEDERATION OF LABOR CIO
AFL-CIO Comes Out Strong for Protectionism, Mar 6 p 11
Meany Stalls Carter's Fight Against Inflation, May 22 p 11
Why Mr. Meany Was Half Right, by Gene Beaudet, May 22 p 3
Will Social Workers Become a Contract Item? May 29 p 14

AMERICAN FOUNDRYMEN'S SOCIETY
Foundry Equipment Makers Report Gains in Orders, May 8 p 19

AMERICAN GEAR MANUFACTURERS ASSN.
Gear Shipments Stuck in Neutral in January, Mar 27 p 17
'78 May Be Another Year of the Gear, Mar 6 p 11
November Brings Mixed Bag to Gear Manufacturers, Feb 6 p 16

AMERICAN INDUSTRIAL HEALTH COUNCIL
OSHA's Carcinogen Rules too Expensive, Study Says, Apr 10 p 18

AMERICAN INSTITUTE FOR IMPORTED STEEL
From Japan Comes Hints for a Steel Quota Scheme, Mar 13 p 11
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51
Service Centers Buying More Domestic Steel, Jan 30 p 13
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Trigger Prices Score Bull's Eye, Importers Say, Mar 6 p 61

AMERICAN INSTITUTE OF INDUSTRIAL ENGINEERS
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

AMERICAN INSTITUTE OF STEEL CONSTRUCTION
Construction's Next Build-Up Will be Harder to See, by Joe Barks, May 29 p 28
Steel Summary: Building Up Steam, June 19 p 87

AMERICAN IRON AND STEEL INSTITUTE
Business Raises Voice Against Carter's Proposals, Mar 20 p 12
The Great Can Fight May Go the Distance, Mar 20 p 65
If This Be Unpatriotic . . . Then I'll Eat My Hat, by Gene Beaudet, June 12 p 3
Import Quotas on Specialty Steel Will Stay, Jan 30 p 14
Industry Challenges New OSHA Rule on Benzene, Feb 20 p 12
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Steel Output Fell in '77; Shipments Rose Slightly, Feb 27 p 41
Steel Put Record Amount into Pollution Control in '77, May 1 p 11
Steel Summary: How Much is 100%? May 29 p 49
Steelmakers are Bullish, But is '78 a China Shop? by G. J. McManus, June 5 p 40
Why World Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
World Steel Spurted, then Sputtered, June 19 p MP-3

AMERICAN MAGNESIUM CORP.
New Capacity, Processes Boost Magnesium Output, June 19 p MP-6

AMERICAN MALLEABLE CASTINGS CO.
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19

AMERICAN MANAGEMENT ASSN.
McKee Builds Its Personnel the Way It Builds Industry, by G. A. Weimer, Apr 3 p 32

AMERICAN METAL STAMPING ASSN.
Metal Stamping Jobs Go Begging for People, May 22 p 13

AMERICAN MINING CONGRESS
The Sky Is Falling on Copper Producers, by E. W. Bowers, Mar 27 p 39
Tin Stockpile Release Plan Raises Questions, Feb 27 p 13

AMERICAN MOTORS CORP.
AMC and Renault to Join Forces, Apr 10 p 23
AMC's Bus Business Gets Red Light - No Orders, June 19 p 14
Automakers Trim Output as Sales Slump Persists, Feb 13 p 14
Pollution Control Recall May Cost AMC over $1 Million, May 29 p 17
Speeding Automakers Fight to Hold the Road, Jan 23 p 11

AMERICAN NATIONAL METRIC COUNCIL
The Metric Boom Has a Faulty Legal Boom, May 22 p 77

AMERICAN NATIONAL STANDARDS INSTITUTE
Voluntary Standards: Everyone Wants In, by J. J. Obrzut, May 29 p 39

AMERICAN PULVERIZER CO.
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

AMERICAN SOCIETY FOR QUALITY CONTROL
QC Circles Productivity, Improve Product Quality, by R. R. Irving, June 5 p 61

AMERICAN SOCIETY FOR TESTING MATERIALS
Voluntary Standards: Everyone Wants In, by J. J. Obrzut, May 29 p 39

AMERICAN SOCIETY OF MECHANICAL ENGINEERS
Plate Fabricators: Deep in the Heart of Houston, by R. R. Irving, May 8 p 59
What It Takes to Get an N Stamp, by R. R. Irving, Jan 23 p 28

AMERICOLOGY DIV.
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

AMERON STEEL CO.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

AMMONIA
Bethlehem Trap Catches Coal Coking Ammonia, Mar 27 p MP-6

ALAN AMPER
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

ROBERT T. AMSDEN
QC Circles Spur Productivity, Improve Product Quality, by R. R. Irving, June 5 p 61

ANACONDA CO.
Copper Producers Reach Verdict - Quota, Not Tariff, Mar 6 p 65
Copper's Latest Plea is a Loaded Question, by R. J. Regan, Mar 20 p 29
High Regulatory Costs Drags Copper Down, Mar 27 p 75
Life with Copper Takes On New Meaning, by R. J. Regan, Feb 6 p 41
What's Being Done About Off-Limits Minerals Lands? by E. W. Bowers, Mar 13 p 31

ANADITE KROPP CO.
Aircraft Makers Prepare for Smooth Take-off, by B. H. LeCerf, June 12 p 32

RAY ANDERSON
Vibratory Stress Relief: Black Magic or Cure-All? by R. R. Irving, Apr 17 p 56

ROBERT ANDERSON
Social Issues Steal Show at Rockwell Annual Confab, Feb 27 p 11

WILBERT S. ANDERSON
Computer Prophecies Keep Laclede on Track, Apr 24 p MP-20

WILLIAM S. ANDERSON
Government Rules Sought on Technology Transfers, Jan 9 p 13

E. F. ANDREWS
Capital Spending Prospects as Viewed by Purchasers, Jan 30 p 19

CECIL D. ANDRUS
Court Reviews Coal Leasing Plan, Mar 13 p 16
Government Launches Critical Study of Non-Fuel Minerals, Jan 9 p 11

What's Being Done About Off-Limits Minerals Lands? by E. W. Bowers, Mar 13 p 31

R. C. ANGELL
Tubing Capacity Swells as Technology Expands, June 12 p 16

ANOCUT INC.
ECD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 59

MARK T. ANTHONY
Anti-TPM Stance Drops Kaiser's Stock 3 Points, May 8 p 14
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Steel Companies are Ready to Make their Move, Apr 17 p 79
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
Trigger Prices on Firing Line, by K. W. Bennett, May 29 p 25
West Coast Imports Outpace Last Year, June 19 p 87

ANTITRUST LAWS
Fruehauf Must Divest Its Kelsey-Hayes Assets, Mar 27 p 18
'Shared Monopoly' Issue Survives, Despite Steel's Problems, Feb 6 p 39
Tighter Anti-Trust Laws Sought by Kennedy, Mar 20 p 13
Zinc Finds a Hard Way to Prove Its Point, Apr 3 p 63

AP PARTS DIV.
Don't Worry About Production; Watch Maintenance Costs, by K. W. Bennett, Jan 30 p 23

D. R. APPEL
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

APPLIANCES
Appliance Makers Find '77 Shipments Comforting, Feb 13 p 13
Appliances Enjoy a Boom of Their Own, May 29 p 15
Appliances Have a Strong Act to Follow, Apr 10 p 24
Short-Handed Appliance Team Keeps Winning, Mar 13 p 15
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

ARBED AG
Luxembourg Has Openings for Foreign Manufacturers, Feb 27 p MP-3

ARCHITECTURE
Energy Savings Begin with Building's Design, by P. J. Cathey, Apr 10 p 53

GEORGE ARAVOSIS
Driving Market Forces Keep Diesels Going, by G. A. Weimer, June 26 p 21

ARGUS RESEARCH CORP.
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43

ARMCO STEEL CORP.
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25
Armco Comes Back to Direct Reduction Market, Jan 30 p MP-1
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
Just Where Do Trigger Prices Misfire? Feb 6 p 11
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
Steelmakers are Bullish, But is '78 a China Shop? by G. J. McManus, June 5 p 40
Steelmakers Stretch to Overcome Coal Strike, Mar 20 p 9
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9
They Designed a Vehicle to Curb Coke Emissions, by G. A. Weimer, Mar 27 p MP-22
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Trigger Prices on Firing Line, by K. W. Bennett, May 29 p 25
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

J. J. ARNTZ
Copperweld Expects All Its Tubing to Score Tens, by G. A. Weimer, May 8 p 38
Tubing Capacity Swells as Technology Expands, June 12 p 16

ASARCO INC.
Copper Faces a Decisive Second Half of '78 by R. J. Regan, June 19 p 41
Don't Hold Your Breath Where Zinc's Concerned, May 8 p 91
Copper Price Returns to Its Roots, Mar 13 p 89
Has Lead Learned from Zinc's Mistakes? May 15 p 57
High Regulatory Costs Drags Copper Down, Mar 27 p 75
Lead Stocks Begin to Climb as '77 Closes, Jan 16 p 71
Metals Merger Activity Continues to Swirl, May 1 p 10
New Copper Standard Will Hit Copper Hard, May 15 p 20
New System Tosses Copper Prices to the Wind, June 26 p 53
Price Stability Comes to Copper Markets, Feb 20 p 63
The Sky Is Falling on Copper Producers, by E. W. Bowers, Mar 27 p 39
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
Zinc Prices Keep Sinking and Sinking, Mar 6 p 65

ASEA, INC.
Ceramic Containers Store Nuclear Waste, Jan 9 p 32

ASSN. OF HOME APPLIANCE MANUFACTURERS
Appliance Makers Find '77 Shipments Comforting, Feb 13 p 13
Appliances Enjoy a Boom of Their Own, May 29 p 15
Appliances Have a Strong Act to Follow, Apr 10 p 24
Short-Handed Appliances Team Keeps Winning, Mar 13 p 15

ASSOCIATIONS
Trade Association Directory, Jan 2 p 109

R. J. ATKINSON
Metal Building Sales Keep Looking Good, Mar 20 p 15

ATLANTIC STEEL PRODUCTS CO.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

ATLAS STEEL CO. OF CANADA
Atlas Turns to Sanyo for Electric Furnace Info, Mar 27 p 75

AUCTIONS
Ask Not for Whom the Gavel Tolls, by Tom Dulaney, May 29 p 33

AUDI NSU AUTO UNION AG
What's Bringing Rotaries Back? by G. A. Weimer, May 8 p 31

AUDITING
Needed by the Board - An Audit Committee, Apr 10 p 49

JOSIAH L. AUSPITZ
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

FRANK AUSTIN
Auto's Weight Loss is Machine Tool's Gain, Apr 3 p 9

AUSTIN CO.
Construction Runs On, May 15 p 36

AUSTRALIA
Corrosion is Our National Financial Disgrace, by J. J. Obrzut, Apr 3 p 41
Sir Charles Holds Court on Australia's Future, June 12 p 57

AUTOMATION
GM's PUMA Robot Tackles Assembly Line Chores, June 5 p 12
Palletizing . . . Hot Trend in Automatic Parts Handling, by I. B. Pond and B. H. LeCerf, Apr 24 p 43

AUTOMATION UNLIMITED INC.
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

AUTOMOBILE DESIGN
GM Aims to Reduce Car Weight, Yet Keep Space, Feb 27 p 12
Small Car Design Will Change Tooling Market, Feb 20 p 12
Playing the "What If" Game in Future Auto Design, by D. A. Van Cleave, Feb 13 p 49

AUTOMOBILE ENGINES
GM Plans to Triple Diesel Engine Output, May 22 p 14
Test Engine Doesn't Meet Expectations, Ford Says, Jan 30 p 15
What's Bringing Rotaries Back? by G. A. Weimer, May 8 p 31

AUTOMOBILES
Aluminum Auto Market Race Speeds Up, Mar 13 p 91
Aluminum Shows Auto Market Proof of Weldability, May 1 p 46
AMC and Renault to Join Forces, Apr 10 p 23
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25
Auto Output Cuts Not Due to Drop in Demand, Mar 20 p 13
Auto Output Forecast for European Nations, May 22 p 14
Auto Redesign Should Help Tool & Die Sales, Jan 16 p 11
Auto Retooling is Aiding Machine Tool Orders, Jan 9 p 11
Auto Sales in Early May Nears Record Levels, May 29 p 14
Auto Sales Spurt in Post-Blizzard Boost, Mar 6 p 10
Automakers are Keeping Machine Tool Builders Busy, Mar 6 p 9
Automakers Confident Despite Sales Chill, Feb 27 p 11
Automakers Cut Output, But Only to Retool, June 19 p 18
Automakers Hear Boos as Sales Slump Continues, Feb 6 p 15
Automakers Remain Bedridden as '78 Starts, Jan 30 p 15
Automakers Rev Up to the Industry's Challenges, May 8 p 15
Automakers Still Expecting Sales to Climb this Year, Apr 17 p 12
Automakers Trim Output as Sales Slump Persists, Feb 13 p 14
Autos' Weight Loss is Machine Tools' Gain, Apr 3 p 9
Car Bodies Fatten Aluminum Shipments, May 15 p 17
Cars Crash in November, Jan 9 p 21
Chrysler Boosts Spending to Redesign Its Cars, May 15 p 18
Chrysler Has Record Loss; GM a Strong First Quarter, May 8 p 15
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29
Consumers Re-Discover Their Emotions for Cars, Apr 3 p 13
Early April Auto Sales Top Pace of 1977, Apr 24 p 14
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26
Ford Ready to Revise its Fuel-Economy Guide, Apr 24 p 14
Ford Will Spend a Record $2.5 Billion in '78, Jan 9 p 14
GM Aims to Reduce Car Weight, Yet Keep Space, Feb 27 p 12
Government Regs Cost GM $200 on Every Vehicle Sold, June 5 p 13
How the Auto Indutry Selects Adhesives, Apr 10 p 106
June Auto Sales Head for a Record, June 26 p 12
Mid-April Auto Sales Defy Analysts' Estimates, May 8 p 14
New Smaller Autos Make Big Use fo SMC Plastic, Feb 27 p 13
Nissan Plans to Set Up Shop in the U. S., May 15 p 16
Playing the "What If" Game in Future Auto Design, by D. A. Van Cleave, Feb 13 p 49
Radials, Tinted Glass and a 5,000 Mile Gas Gap, May 8 p 35
Small Car Design Will Change Tooling Market, Feb 20 p 12
Speeding Automakers Fight to Hold the Road, Jan 23 p 11
Steady Gains and Shaky Confidence, Jan 2 p 17
Steel Summary: Trigger Prices Fire Two Blanks, Jan 16 p 69
U. S. Auto Sales Overcome Winter Breakdowns, Apr 10 p 18
U. S. Foreign Automakers Set Monthly Sales Record, June 19 p 14
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer,Jan 30 p 20
Will the Japanese Follow VW to the United States? May 1 p 13
Winter Weather Blamed for Auto Sales Drop, Mar 27 p 15

AUTOMOTIVE INDUSTRY
Automakers Confident Despite Sales Chill, Feb 27 p 11
Automakers Cut Output, But Only to Retool,June 19 p 18
Automakers Hear Boos as Sales Slump Continues, Feb 6 p 15
Automakers Remain Bedridden as '78 Starts, Jan 30 p 15
Automakers Rev Up to the Industry's Challenges, May 8 p 15
How the Auto Industry Selects Adhesives, Apr 10 p 106
Metalworking 1978 as Seen by 100 Analysts, by J. D. Baxter, Feb 20 p 25
Speeding Automakers Fight to Hold the Road, Jan 23 p 11
U. S. Foreign Automakers Set Monthly Sales Record, June 19 p 14
Which Road for Detroit: Small or More Complex? June 26 p 13
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20

AUTONUMERICS, INC.
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

AVA TOSHIN SERVICE AND SUPPLY CO.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

AVEY MACHINE TOOL CO.
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

AVONDALE SHIPYARDS
Tanker Carries One Day's Output of Alaskan Oil, Jan 9 p 12

ROBERT A. AYRES
"Warm Forming" Aluminum Extends Usage in Cars, Mar 20 p 42

B

H. N. BABCOCK
Non-Shrink Grouts Save Maintenance, Cut Downtime, Feb 27 p MP-24

BABCOCK & WILCOX CO.
Pipe Producers Troubled by the New Wave of Imports, by K. W. Bennett, Mar 20 p 25
Tubing Capacity Swells as Technology Expands, June 12 p 16

FRED BAERWALD
Aluminum Smelter Glut Puts Pressure on Price, Feb 20 p 65

HUBERT L. BAILEY
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

KENNETH BAKER
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

N. S. BALAKRISHNAN
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

BALL CORP.
Ball Corp. Makes Certain Its Workers Understand, by C. T. Post, June 12 p 28

BALLINGER CO.
Construction's Next Build-Up Will be Harder to See, by Joe Barks, May 29 p 28

BANKING
The New Eximbankers Foreclose On Apathy, by E. W. Bowers, Feb 13 p 22

BANKRUPTCIES
Alan Wood Begins a 'Life or Death' Sale, by Tom Dulaney, Mar 20 p 34
Alan Wood Staves Off Liquidation for Now, June 19 p 93
Bankruptcy Court Orders Alan Wood Auction, Feb 6 p 91

CHARLES F. BARBER
Don't Hold Your Breath Where Zinc's Concerned, May 8 p 91
High Regulatory Costs Drags Copper Down, Mar 27 p 75
Metals Merger Activity Continues to Swirl, May 1 p 10
Price Stability Comes to Copper Markets, Feb 20 p 63
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32

BARBER-COLMAN CO.
Dual Lube System Cuts Machine Downtime, Apr 17 p 59
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

PAUL BARCUS
Iceberg Transport Could Open New Industry, by D. A. Van Cleave, Feb 27 p 31

R. J. BARILE
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9

JOHN BARKER
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25
They Designed a Vehicle to Curb Coke Emissions, by G. A. Weimer, Mar 27 p MP-22

WILLIAM BARLOW
Supreme Court's Deciding if OSHA Can Barge Ahead, Jan 23 p 13

BARLOW, INC.
Supreme Court's Deciding if OSHA Can Barge Ahead, Jan 23 p 13

BARMET INDUSTRIES
Total Aluminum Recycling System Aids Steelmakers, by G. A. Weimer, June 19 p MP-23

T. M. BARNES
Slag, Fines and Fume - Steel's New Raw Material, by G. J. McManus and G. A. Weimer, May 22 p MP-15

WALLACE BARNES
Metalworking Profits Have Surprising First Quarter, May 15 p 26

BARNES GROUP, INC.
Metalworking Profits Have Surprising First Quarter, May 15 p 26

V. R. BARRORD
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25

BARS AND RODS
From Morgan to Raritan: A High-Speed Rod Mill, Mar 27 p MP-36

CHARLES F. BARTH
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

BASIC OXYGEN FURNACES
Bethlehem Unveils Marvel in Steel Technology, by K. W. Bennett, June 19 p MP-15
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
Steel Output Fell in '77; Shipments Rose Slightly, Feb 27 p 41

BASIC OXYGEN PROCESS
Republic Shows First "From Scratch" Q-BOP Furnaces, May 22 p 82
Steel Output Fell in '77; Shipments Rose Slightly, Feb 27 p 41

ROBERT O. BASS
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

RAY BATES
Why British Leyland is Sold on Electronic Bolt Tightening, by R. R. Irving, June 12 p 44

BATTELLE COLUMBUS LABORATORIES
Cables and Structures Share Research Spotlight, May 29 p 44
Corrosion is our National Financial Disgrace, by J. J. Obrzut, Apr 3 p 41
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18
1986 Aluminum Capacity Won't Meet Demand - Battelle, Jan 30 p MP-1
Real Growth Absent in '78 R & D Spending, Jan 16 p 12
Vibratory Stress Relief: Black Magic or Cure-All? by R. R. Irving, Apr 17 p 56

BATTELLE HUMAN AFFAIRS RESEARCH CENTER
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

BATTELLE MEMORIAL INSTITUTE
R & D A Matter of Survival? You Bet! by Gene Beudet, Jan 30 p 3

BATTERIES
Batteries Out of Season: Lead Shipments Go Bad, June 19 p 89
Battery Breakthrough Recharges Electric Auto, by G. A. Weimer, Apr 24 p 32
Breakthrough Recharges Electric Car's Future, Mar 27 p 16
Gould Inc. Gets Contract for Nickel-Zinc Battery, June 5 p 14
Lead Industry Will Ride Along with Battery Market, Feb 13 p 63
New Charge for Coal Mines, May 1 p 41

BAUXITE
Carribean Bauxite Loses Ground in U. S. Markets, by R. J. Regan, Mar 6 p 30
More Aluminum Products Get a Price Boost, Feb 27 p 39
Sir Charles Holds Court on Australia's Future, June 12 p 57
Will Jamaica Make Advance Levies a Habit? Mar 27 p 73

WILLIAM BAYERSDORFER
Imports Start Cropping Up in Farm Equipment Market, May 1 p 10

BENJAMIN S. BEALL, III
Beall Reelected President of Heating Equipment Group, May 1 p 12

PETER S. BEARDMORE
Machine Tool Makers Like Near-Term Outlook, Apr 10 p 28

J. F. BEARDSLEY & ASSOCIATES INTERNATIONAL, INC.
QC Circles Spur Productivity, Improve Product Quality, by R. R. Irving, June 5 p 61

BEARDSLEY & PIPER, INC.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

BEARINGS
Congressional Support Asked for Bearing Makers, Mar 6 p 10
Core Crushing: A Problem in Big Bearing Design, by G. A. Weimer, June 5 p 70

H. O. BEAVER
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59

ERNEST A. BECKER, SR.
Housing's on the Run, June 5 p 36

GEORGE BECKER
Is Giddings & Lewis Returning to Its Roots? Jan 9 p 12

E. L. BEDELL
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

BEHR IRON & STEEL, INC.
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

BELDEN CORP.
Financial Men Tell What's Holding Economy Back, Feb 6 p 35

GRIFFIN BELL
Bell Wants More Data on Lykes-LTV Plans, June 26 p 13

BELLMORE-JOHNSON TOOL CO.
PM Triggers Vital Savings for Gun Parts, June 19 p 63

BENDIX CORP.
ECD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 59
Metals Merger Activity Continues to Swirl, May 1 p 10

WILLIAM BENJAMIN
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

LAWRENCE H. BENNETT
Corrosion is Our National Financial Disgrace, by J. J. Obrzut, Apr 3 p 41

GARY BENNETHUM
What's Being Done About Off-Limits Minerals Lands? by E. W. Bowers, Mar 13 p 31

BENZENE
Industry Challenges New OSHA Rule on Benzene, Feb 20 p 12

ROBERT BERDINE
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

C. FRED BERGSTEN
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

T. ROLAND BERNER
Kennecott, Curtiss-Wright Drawing Their Battle Lines, Apr 17 p 15
Kennecott Fought Hard to Stay in Control, May 15 p 18
Kennecott Shareholders Day of Decision - May 2, May 1 p 9

BERNEX CORP.
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

L. M. BERNICK
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9

BERYLLIUM
Beryllium Nickel Strip Gets Better with Age, by B. H. LeCerf, May 22 p 84

MORRIS R. BESCHLOSS
Valve Industry Wants Tougher Dumping Laws, May 1 p 12

VICTOR BESSO
Reynolds Orders Three "New Generation" Casters, Mar 20 p 62

BETHLEHEM STEEL CORP.
Bethlehem Trap Catches Coal Coking Ammonia, Mar 27 p MP-6
Bethlehem Unveils Marvel in Steel Technology, by K. W. Bennett, June 19 p MP-15
Japan Wins Another Battle, But Not the War, May 22 p 107
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Slag, Fines and Fume - Steel's New Raw Material, by G. J. McManus and G. A. Weimer, May 22 p MP-15
Steel and Copper Workers Eligible for Job Assistance, Apr 3 p 15
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Steel Summary: Getting Some Answers, June 26 p 53
Steel Summary: Price Hikes Ill-Timed? Jan 9 p 39

JAMES BEWLEY
Valvemakers Switch to Plasma Hardfacing, Mar 6 p 43

G. H. BHAT
Will Plasma Steelmaking Replace the Electric Furnace? Apr 24 p MP-29

BENNETT E. BIDWELL
Few Energy-Saving Miles in Gas Tax, Ford Exec Says, Apr 17 p 12
Which Road for Detroit: Small or More Complex? June 26 p 13

L. C. BIELICKI
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

JOHN BILLERA
Reducing Debt Structure Gets Top Priority, Apr 17 p 23

BILLETS
Add a Conditioning Plant to Republic's List, May 22 p MP-6
Billet Grinding Moves into High Speed Operation, by C. T. Post, Apr 24 p MP-25

EULA BINGHAM
Founders Cast Lines for Government Understanding, Mar 6 p 10
Industry Challenges New OSHA Rule on Benzene, Feb 20 p 12
OSHA Must Have Warrants, But Nothing Has Changed, June 5 p 11
OSHA Must Have More Rules - Bingham, June 26 p 13
A Safe Foundry is Hard to Produce, Apr 24 p MP- 3

BIOMASS
Hunt for Energy Turns to Cow Pasture, Apr 3 p 15

ANGELO BISINELLA
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

BITUMINOUS COAL OPERATORS ASSN.
Federal Mediators Join Bituminous Coal Talks, Jan 23 p 13
Government Puts Heat on for a Coal Settlement, Feb 27 p 11
Settlements Won't Burn Off Coal's Basic Problems, by G. A. Weimer, Feb 27 p 21
Tentative Coal Accord to Get Close Look, Mar 6 p 9

BLAST FURNACES
Commercial Marketing of FMC's Formcoke Process, Feb 27 p MP-28

BLAW-KNOX CO.
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

BERNARD BLOOM
New Coke Quench Data Jolts Steel Mills, by G. J. McManus, Jan 30 p MP-5

W. MICHAEL BLUMENTHAL
Carter Fires First Salvo in Anti-Inflation Battle, Apr 24 p 12
Please, Fellows, Cut Out the Hype, by Gene Beaudet, Feb 6 p 3
Ullman Hopes to Reduce Double Tax on Dividends, Feb 20 p 11
White House Opposes Capital Gains Tax Cut, May 29 p 13
Why Short-Term Credit is Getting More Active, May 22 p 29
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

SETH BODNER
Don't Let Zinc Prices Fall to the Bottom, ITC Told, Mar 20 p 61
Zinc Finds a Hard Way to Prove Its Point, Apr 3 p 63

BOEING CO.
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53
Aircraft Makers Prepare for Smooth Takeoff, by B. H. LeCerf, June 12 p 32
Army Gets High on Fiberglass Blades, June 26 p 39
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37
Pultrusion: Composites' Road to Mass Production, by C. T. Post, Jan 30 p 27

BOEING COMPUTER SERVICE, INC.
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

FREDRIC BOLLING
Playing the "What If"Game in Future Auto Design, by D. A. Van Cleave, Feb 13 p 49

HARRY J. BOLWELL
Making Success Out of Risk in a Crisis Marketplace, by G. A. Weimer, Jan 9 p 16
There are Ways to Avoid Capital Goods Cycles, May 22 p 29

BONAL CORP.
Vibratory Stress Relief: Black Magic or Cure-All? by R. R. Irving, Apr 17 p 56

L. G. BONAR
Competition is Killing Nickel, by R. J. Regan, May 15 p 29

BONDING
Adhesives Poised to Steal More of Joining Market, by J. J. Obrzut, Apr 24 p 46
How the Auto Industry Selects Adhesives, Apr 10 p 106

JOHN BONESTELL
Ore Reduction Plants Could Be Put to Sea, May 22 p MP-3

ROBERT E. BONI
Armco Comes Back to Direct Reduction Market, Jan 30 p MP-1

EUGENE BONZACK
Palletizing . . . Hot Trend in Automatic Parts Handling, by J. B. Pond and B. H. LeCerf, Apr 24 p 43

BOOMS
Quality Engineering Can be a Real Profit Center, by R. R. Irving, Apr 17 p 53

HALDEN L. BOOTH
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44

BORG-WARNER CORP.
Nickel Coating Prepares Aluminum for Brazing, May 8 p 69
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

BARRY BOSWORTH
Now, Let's See What Happens, by Gene Beaudet, June 26 p 3
Ok, Call the Cops . . . But on Whom? by Gene Beaudet, May 15 p 3
Regulations Hit Public, COWPS Director Concedes, Apr 24 p 13
Steel Seeks Compromise on Air Pollution Rules, June 26 p 14
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
Steel Summary: Price Hikes Ill-Timed? Jan 9 p 39

DOUGLAS J. BOURNE
For Copper, a Hectic Seven Days in May, June 5 p 92

FRED W. BOWDITCH
Speeding Automakers Fight to Hold the Road, Jan 23 p 11

ROBERT B. BRACKIN
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41

J. T. BRADFORD
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

FRANK X. BRADLEY
What's New for Aluminum in '78, by R. J. Regan, Jan 16 p 22

BRANSON SONIC POWER CO.
Weld Costs Plummet with Ultrasonics, by D. A. Van Cleave, Apr 3 p 48

BRASIMET INDUSTRIES CORP.
White House Undercuts ITC Action on Pipe Imports, May 8 p 11

D. F. BRAVERMAN
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

WILLIAM BRAZIER
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29

BRAZING
Nickel Coating Prepares Aluminum for Brazing, May 8 p 69

PETER BREBACH
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25

ELLIOT J. BREBNER
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

C. FRED BREGSTEN
Treasury Aide Predicts Narrower Trade Deficits, June 19 p 11

JOSEPH BRENNAN
Settlement Won't Burn Off Coal's Basic Problems, by G. A. Weimer, Feb 27 p 21

BRIDGEPORT MACHINES DIV.
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

BRIQUETTING
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

BRISTOL BRASS CORP.
Some New Semantics for the Word 'Profit', Apr 17 p 23

BRITISH LEYLAND MOTORS, LTD.
Why British Leyland is Sold on Electronic Bolt Tightening, by R. R. Irving, June 12 p 44

BROACHING
Double Your Output by High-Speed Broaching, by J. J. Obrzut, June 5 p 67

JAMES L. BROADHEAD
Don't Let Zinc Prices Fall to the Bottom, ITC Told, Mar 20 p 61
Zinc Imports Blamed for St. Joe Layoffs, Mar 13 p 91
Zinc Imports Drop, But Shipments Still Lag May 29 p 50

RAY BROMMELSIEK
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

BROOKINGS INSTITUTION
This Comes as a Surprise? by Gene Beaudet, Mar 6 p 3

R. D. BROOKS
Refueling Fuel Cell Power Research, May 29 p 44

J. R. BROUGH
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25

J. J. BROWN
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

BROWN, CAMPBELL CO.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

BROWN & SHARPE MFG. CO.
Machine Tool Makers Like Near-Term Outlook, Apr 10 p 28

JACKSON BROWNING
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25

BRUNSWICK CORP.
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

JOHN BUCHANAN
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

J. FRED BUCY
Don't Short Change R & D Spending - It Pays Off, Feb 27 p 16

BUDD CO.
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65
Metalworking's Merger Fever Hits New High, by P. J. Cathey, June 12 p 23
Tell Congress What You Want, Businessmen Urged, June 5 p 15

ARTHUR BUECHE
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18

HORST BUELTE
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25

BUILDING CONSTRUCTION
Construction's Next Build-Up Will be Harder to See, by Joe Barks, May 29 p 28
Energy Savings Begin with Building's Design, by P. J. Cathey, Apr 10 p 53
Housing's On the Run, June 5 p 36
Iron and Steel Don't Share Construction Wealth, Apr 24 p 13
Housing's Final Curtain, May 8 p 41
Metal Building Sales Keep Looking Good, Mar 20 p 15

JOHN BUNTING
Needed by the Board - An Audit Committee, Apr 10 p 49
Why the Prime Rate Keeps on Rising, Jan 23 p 18

A. B. BURCH
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

BURCH DIV.
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

BUREAU OF NATIONAL AFFAIRS
ERISA's Operation Keeps Causing Headaches, Feb 6 p 35
Sure Signs of Good Times: There's More Hiring, June 12 p 14

ROBERT D. BURGER
Automakers Confident Despite Sales Chill, Feb 27 p 11

BURGESS BROS. MACHINING CO.
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19

BUSES
AMC's Bus Business Gets Red Light - No Orders, June 19 p 14

BUSINESS AND INDUSTRIAL FURNITURE MANUFACTURERS ASSN.
Office Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

BUSINESS COUNCIL
Business Council Sees Slower Growth, June 12 p 17

BUSINESS FINANCEFRONT
Weekly captions of matters pertaining to economics, finance, management and economic forecasting.

BUSINESS FORECAST
Weekly survey of consumer prices, construction and composite price index - featurettes.

WILLARD C. BUTCHER
Trading Nations Should Go One-on-One, June 26 p 27

J. C. C. BYRNE
Financial Men Tell What's Holding Economy Back, Feb 6 p 35

FLETCHER L. BYROM
Keep Cash Flowing through Capital Spending, May 1 p 21

C

CDM DIV.
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37

CECN INDUSTRIES, S. A. (FRANCE)
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

CIT FINANCIAL CORP.
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

CABLES
Cables and Structures Share Research Spotlight, May 29 p 44

T. L. CAIRNS
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18

ALFRED CALABRIA
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58

PHILIP CALDWELL
A Profit is Not Without Honor, Save in Its Own Country, Apr 10 p 63

CALIFORNIA AIR RESOURCES BOARD
Radials, Tinted Glass and a 50,000 Mile Gas Gap, May 8 p 35

T. F. CALLAHAN, JR.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

BRUCE CAMERON, JR.
Small Metal Fabricators Can Get NC Software, Mar 17 p 50

JOHN CAMPBELL
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

CAR MANUFACTURERS INSTITUTE
The Great Can Fight May Go the Distance, Mar 20 p 65

CANADA
Canada's Iron Ore Mines Crippled by Strikes, Apr 10 p 25
Separate Quebec a Fact, Says Cabinet Minister, May 8 p 18
U. S., Canada Lead Aluminum Output Parade, May 8 p 87

CANS
Aluminum and Steel Tied in Can Market, June 26 p 15
Aluminum Makers Up Output; Alco Ups Can Sheet Price, Jan 23 p 41
Aluminum Producers Waste No Time in '78, Jan 30 p 41
Can Sheet Keeps Aluminum Rolling, May 29 p 54
The Great Can Fight May Go the Distance, Mar 20 p 65
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

CAPITAL EXPENDITURES
Appropriations Up, Except for Primary Metals, June 19 p 36
Capital Spending Fades, June 5 p 36
Capital Spending Halved by High Inflation, May 29 p 13
Capital Spending Prospects as Viewed by Purchasers, Jan 30 p 19
Capital Spending Rises, Apr 10 p 57
Capital Spending Slips, Jan 16 p 32
Executives Rein-In Capital Spending Plans, June 19 p 11
Ford Will Spend a Record $2.5 Billion in '78, Jan 9 p 14
Heavy Backlogs Support Capital Spending Hopes, Apr 3 p 24
How Can Metalworking Stop Liquidating Itself? June 12 p 21
It Costs GM $2 Billion to Save 1 MPG, Mar 13 p 17
Keep Cash Flowing through Capital Spending, May 1 p 21
Profits Decline to Record How-How's That, Again? by J. D. Baxter, Apr 17 p 25
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
Steady Gains and Shaky Confidence, Jan 2 p 17
There are Ways to Avoid Capital Goods Cycles, May 22 p 29
Why Isn't Plant Spending Doing a Lot Better? Mar 13 p 38

JAMES A. CAPOLONGO
Test Engine Doesn't Meet Expectations, Ford Says, Jan 30 p 15

CARBON
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9

CARBORUNDUM CO.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

CARCINOGENS
OSHA's Carcinogen Rules too Expensive, Study Says, Apr 10 p 18

R. F. CARLSON
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

CARLTON MACHINE TOOL CO.
Chrysler Tank Subcontract Causes Concern, by E. W. Bowers, Apr 17 p 30

CARNEGIE-MELLON UNIVERSITY
Will Plasma Steelmaking Replace the Electric Furnace? Apr 24 p MP-29

D. J. CARNEY
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32

Steel Summary: Price Hikes Ill-Timed? Jan 9 p 39

CARPENTER TECHNOLOGY CORP.
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59
What Makes Up an Award Winning Annual Report, Feb 27 p 16

CARRIBEAN AREA
Carribean Bauxite Loses Ground in U. S. Markets, by R. ', Regan, Mar 6 p 30

GEOFF J. CARRIER
Why British Leyland is Sold on Electronic Bolt Tightening, by R. R. Irving, June 12 p 44

KENNETH CARSE
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

J. EDWIN CARTER
Competition is Killing Nickel, by R. J. Regan, May 15 p 29
Inco Begins to See Some Real Growth, May 29 p 49
Global Nickel Takes Its Knocks; Production Dips, Jan 23 p 39
Inco's Selling More Nickel But Making Less, May 1 p 53
New Year Promises More of the Same for Inco, Jan 9 p 39

JIMMY CARTER
Carter Fires First Salvo in Anti-Inflation Battle, Apr 24 p 12
Carter Links Tax Reforms to His $25 Billion Tax Cut, Jan 30 p 14
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
White House Undercuts ITC Action on Pipe Imports, May 8 p 11

J. I. CASE CO.
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

HARRY B. CASEY
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33

BRAIN CASSEDY
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51

J. N. CASSETTI
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

CASTERS
Reynolds Orders Three "New Generation" Casters, Mar 20 p 62

CASTINGS
Founders Cast Lines for Government Understanding, Mar 6 p 10
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31
Reynolds Orders Three "New Generation" Casters, Mar 20 p 62
Search for Oil Helps Elcast Strike It Rich, Jan 30 p MP-2

CASTINGS CONGRESS
Foundry Equipment Makers Report Gains in Orders, May 8 p 19

A. M. CASTLE CO.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr. 17 p 39

CAST METALS FEDERATION
Founders Cast Lines for Government Understanding, Mar 6 p 10

CAST STEEL
Need a Tough Bit? Try Strand-Cast Steel, Feb 27 p 33

R. F. CATERINO
EB Curing Foils High Costs of Material Coating, Mar 13 p 63

CATERPILLAR TRACTOR CO.
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

W. T. CAVANAUGH
Voluntary Standards: Everyone Wants In, by J. J. Obrzut, May 29 p 39

DAVID CAVANDER
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

CENTECH, INC.
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

CENTRAL INTELLIGENCE AGENCY
CIA Uncovers Chinese Metals, June 26 p 56

CENTRAL STEEL & TUBE CO.
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25

CERAMICS
Ceramic Containers Store Nuclear Waste, Jan 9 p 32

ROD CHAMBERS
Chip Resistance from Semi-Cobalt Coating, Mar 27 p MP-36

CHASE BRASS & COPPER CO.
Zinc's Bad News Could Also be Copper's, June 12 p 58

CHASE ECONOMETRICS ASSOC.
Aluminum Producers Scramble to Add Capacity, Mar 13 p 89
Can Lightweight Plastics Continue Heavy-weight Push? by B. H. LeCerf, May 15 p 44
Capital Gains Tax Draws Supporters, June 26 p 11
Copper Stockpiling Has Carter Support-Udall, Mar 20 p 65
Japan Wins Another Battle, But Not the War, May 22 p 107
When Lead Price Will Drop is Anyone's Guess, Mar 27 p 78

CHASE MANHATTAN BANK
Financial Reports Conceal the Capital Shortfall, Jan 9 p 15
Trading Nations Should Go One-on-One, June 26 p 27
Why Isn't Plant Spending Doing a Lot Better? Mar 13 p 38

CHASE METALS SERVICE INC.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

R. L. CHEEK
Aluminum and Steel Tied in Can Market, June 26 p 15

J. ALDEN CHEEVER
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19

CHEMIFORM INC.
ECD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 59

CHEMTOOL, INC.
ECD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 59

CHESTERFIELD CYLINDER CO.
Tube Investments Plans Cylinder Plant in Oklahoma, Apr 24 p 15

CHEVROLET DIV.
New Smaller Autos Make Big Use of SMC Plastic, Feb 27 p 13

J. HUNTER CHILES III
Energy Costs by 1985; Energy Mix by 2000 A. D., Apr 3 p 14

CHILTON RESEARCH SERVICES
Spirits are Down on the Farm, May 1 p 33
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

CHINA
CIA Uncovers Chinese Metals, June 26 p 56
Machine Tools to China Could Spark U. S. Economy, Mar 27 p 16
Surplus Predicted in U. S.-China Trade, June 26 p 11

W. E. CHRISTENSON
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

KRISTIAN CHRISTIANSEN
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

GEORGE A. CHRISTIE
Construction At Its Peak? Feb 13 p 31
Construction Gets a Trim, Mar 20 p 33
Construction Runs On, May 15 p 36
Construction Shows Depth, Apr 17 p 34
Construction's Next Build-Up Will be Harder to See, by Joe Barks, May 29 p 28

CHROMALLY CORP.
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

CHROME ORE
Union Carbide, Domestic Ferrochrome Producers Clash, Jan 30 p 39

CHROMIUM
Chromium Substitutes Worth a Second Look, by B. H. LeCerf, May 29 p 42

CHRYSLER CORP.
Aluminum Auto Market Race Speeds Up, Mar 13 p 91
Chrysler Boosts Spending to Redesign Its Cars, May 15 p 18
Chrysler Has Record Loss; GM a Strong First Quarter, May 8 p 15
Chrysler Tank Subcontract Causes Concern, by E. W. Bowers, Apr 17 p 30
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26
Speeding Automakers Fight to Hold the Road, Jan 23 p 11
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20

CINCINNATI MILACRON
Autos' Weight Loss is Machine Tools' Gain, Apr 3 p 9
Machine Tool Makers Like Near-Term Outlook, Apr 10 p 28
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51
Metalworking Profits Have Surprising First Quarter, May 15 p 26
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

ERVIN CISZEK
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

CITIBANK
Consumers are Worried, May 1 p 29
Currency Fluctuations Distort Earnings, June 5 p 29
A Five-Year Profit Gain is Really a Loss, May 8 p 29
Housing's Final Curtain, May 8 p 41
Metalworking Profits Grow in '78s First Quarter, May 29 p 23
The Party's Over, June 26 p 31
Profits Companies Saw are Not What They Got, Apr 24 p 25
Profits in '77- Good, But Not Great, Year for Most! Mar 27 p 27
Who Says Business Isn't Borrowing at a Strong Level? Jan 16 p 21

JOSEPH CLANCY
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

JOHN CLAPP
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

CLEANING
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9
Some Thoughts About Cleaning Steel for Painting, by J. J. Obrzut, Mar 27 p 52

DONALD CLEM
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

CLEVELAND-CLIFFS IRON CO.
Iron Ore Outlook Begins to Brighten, May 22 p MP-3
What Makes Up an Award Winning Annual Report, Feb 27 p 16

CLEVELAND ILLUMINATING CO.
It's Getting Harder to Get Power to the People, by G. J. McManus, Mar 6 p 26

CLEVELAND TRUST CO.
Jobless Figures Hinder Battle Against Inflation, June 19 p 18

ARTHUR CLEVER
Electronics Helps Fastening Move from Art to Science, by R. ,R Irving, June 26 p 32

CARL CLINE
Scientific Curiosities Look for Jobs in Industry, Jan 9 p 32

PAUL J. CLYMER
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

COAL
Carter's Coal Plan Needs $10 Billion Rail Investment, Apr 17 p 15
Coal Gasification: Steel's Toughest Environment Yet, by R. R. Irving, Mar 6 p 35
Coal Miners Went on Strike and Life Went On as Usual, Apr 3 p 12
Coal Strike Inches Its Way Toward a Settlement, Jan 30 p 13
Coal Strike Reins '78 Aluminum Production, Mar 20 p 63
Coal Supplies Dwindle as UMW Negotiations Dawdle, Feb 20 p 11
Court Reviews Coal Leasing Plan, Mar 13 p 16
Energy Costs by 1985; Energy Mix by 2000 A. D., Apr 3 p 14
Federal Mediators Join Bituminous Coal Talks, Jan 23 p 13
Government Puts Heat on for a Coal Settlement, Feb 27 p 11
Government to Station Inspectors in Coal Mines, May 8 p 18
New Charge for Coal Mines, May 1 p 41
Settlement Won't Burn Off Coal's Basic Problems, by G. A. Weimer, Feb 27 p 21
Steelmakers Stretch to Overcome Coal Strike, Mar 20 p 9
Taft-Hartley Just Adds Fuel to Miners' Fire, Mar 13 p 15
Tentative Coal Accord to Get Close Look, Mar 6 p 9
U. S. Asked to Encourage Coal Exports to Japan, May 1 p 11
When Coal Strike Ends, Its Costs Will Just Begin, Mar 27 p 11
Will 'Miners Got 39' Be Labor's New Hit Song? Apr 10 p 17

COAL EXPORTERS ASSN.
U. S. Asked to Encourage Coal Exports to Japan, May 1 p 11

COASTAL ENGINEERING PRODUCTS, INC.
Pultrusion: Composites' Road to Mass Production, by C. T. Post, Jan 30 p 27

COATINGS
Chip Resistance from Semi-Cobalt Coating, Mar 27 p MP-36
Coil Coaters Seek a 'Perfect' Galvanized Steel, by J. J. Obrzut, May 1 p 37
EB Curing Foils High Costs of Material Coating, Mar 13 p 63
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51
Nickel Coating Prepares Aluminum for Brazing, May 8 p 69

COBALT ALLOYS
Chip Resistance from Semi-Cobalt Coating, Mar 27 p MP-36

GEORGE B. COBEL
Magnesium Has the Price Other Metal Producers Envy, by R. J. Regan, Mar 27 p 35

COBER ELECTRONICS, INC.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

MILTON R. COHEN
What It Takes to Get an N Stamp, by R. R. Irving, Jan 23 p 28

DUDLEY COILLET
Iceberg Transport Could Open New Industry, by D. A. Van Cleave, Feb 27 p 31

COILS
Coil Coaters Seek a 'Perfect' Galvanized Steel, by J. J. Obrzut, May 1 p 37
Optical Sensors Impact Coil Handling System, Mar 27 p MP-42

COKE
Commercial Marketing of FMC's Formcoke Process, Feb 27 p MP-28
New Coke Data Jolts Steel Mills, by G. J. McManus, Jan 30 p MP-5
"Lowering the Boom" on Coke Oven Emissions, Mar 27 p MP-35
They Designed a Vehicle to Curb Coke Emissions, by G. A. Weimer, Mar 27 p MP-22

COKE OVENS
"Lowering the Boom" on Coke Emissions, Mar 27 p MP-35
They Designed a Vehicle to Curb Coke Emissions, by G. A. Weimer, Mar 27 p MP-22

CALDWELL BANKER COMMERCIAL BROKERAGE CO.
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

COLUMBIA BROADCASTING SYSTEM
So, Color Me Predictable, by Gene Beaudet, Jan 9 p 3

COMBUSTION ENGINEERING, INC.
Metalworking Profits Have Surprising First Quarter, May 15 p 26
Power Demand Expected to Double by 1990, Apr 10 p 25

COMEX COMMODITY EXCHANGE, INC.
Aluminum Smelter Glut Puts Pressure on Price, Feb 20 p 65

JOHN COMFORT
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

COMPOSITE MATERIALS
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53
Pultrusion: Composites' Road to Mass Production, by C. T. Post, Jan 30 p 27

COMPUTER AIDED MFG. INC.
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

COMPUTER AIDED MANUFACTURING-INTERNATIONAL, INC.
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

COMPUTER AND BUSINESS MANUFACTURERS' ASSN.
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

COMPUTER ASSISTED DESIGN
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33
NC-CAD/CIM Report, by J. B. Pond, June 5 p 45
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37

COMPUTER ASSISTED MANUFACTURING
Entry-Level Computers Attract Manufacturing, by A. M. Greene, May 1 p 42
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51
NC-CAD/CIM Report, by J. B. Pond, June 5 p 45
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

COMPUTER GRAPHICS
Interactive Graphics Mates with NC Flame Cutting, by R. R. Irving, Feb 13 p 46
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

COMPUTERS
Bethlehem Unveils Marvel in Steel Technology, by K. W. Bennett, June 19 p MP-15
Computer Bundles Growth and Diversity Into Neater Package, Mar 27 p MP-45
Computer Business Surge is Programmed by IBM, June 12 p 17
Computer Prophecies Keep Laclede on Track, Apr 24 p MP-20
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29
Entry-Level Computers Attract Manufacturing, by A. M. Greene, May 1 p 42
Incentive Lack Threatens U. S. High Technology Lead, Mar 20 p 15
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51
Making the Most of a Computerized Energy System, Mar 13 p 63
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35
New GE Plastic Aimed at Metal's Computer Market, Mar 13 p 16
NC-CAD/CIM Report, by J. B Pond, May 8 p 43

HOWARD CONANT
Service Centers Buying More Domestic Steel, Jan 30 p 13
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

CONCAST, INC.
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

CONFERENCE BOARD
Appropriations Up, Except for Primary Metals, June 19 p 36
Consumers are Worried, May 1 p 29
Consumers Overloaded? Apr 10 p 57
Equal Time, Mar 20 p 33
From Boston to Berlin, Job Market Picks Up, May 15 p 13
Heavy Backlogs Support Capital Spending Hopes, Apr 3 p 24
Help-Wanted, Jobless Rates Continue to Disagree, Jan 16 p 13
Is Short-Term Borrowing Getting Out of Hand? May 15 p 26
Job-Seekers Left Cold; Technical Demand Up, Mar 13 p 14
Metalworking's Merger Fever Hits New High, by P. J. Cathey, June 12 p 23
Needed by the Board - An Audit Committee, Apr 10 p 49
The Party's Over, June 26 p 31
Rabid Spending, June 12 p 35
"Renewal of Inflationary Pressures Would be a Painful Reappraisal", Mar 13 p 41
Shopping Sprees Ahead? Feb 6 p 49
Sure Signs of Good Times: There's More Hiring, June 12 p 14
Technical Demand is Off and Running, Apr 17 p 16

CONOCO COAL DEVELOPMENT CO.
Coal Gasification: Steel's Toughest Environment, by R. R. Irving, Mar 6 p 35

CONRAC MACHINE TOOL DIV.
Save on Installed Cost of Pressure Piping, Feb 13 p 54

CONSOLIDATED ALUMINUM CORP.
Aluminum's Price Seeks Its Own Level, June 12 p 59
Increased Filtering R & D Screens Out Snags, Apr 24 p MP-3
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

CONSTRUCTION INDUSTRY
Concrete Canoe Sinking? June 12 p 35
Construction At Its Peak? Feb 13 p 31
Construction Gets a Trim, Mar 20 p 33
Construction Runs On, May 15 p 36
Construction Shows Depth, Apr 17 p 34
Construction's Next Build-Up Will be Harder to See, by Joe Barks, May 29 p 28
Iron and Steel Don't Share Construction Wealth, Apr 24 p 13
Plant Construction Work May Boom in 1980's, May 29 p 17
Starts Come to a Stop, Mar 6 p 29
Steel Summary: Building Up Steam, June 19 p 87

CONSUMER PRODUCT SAFETY COMMISSION
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39

CONSUMERISM
Consumer-Demands Change NDT Practice, Jan 30 p 32
Consumers are Worried, May 1 p 29
Consumers Overloaded? Apr 10 p 57
Credit Checked, Mar 27 p 42
Double-Digit Time, June 12 p 35
Equal Time, Mar 20 p 33
The Party's Over, June 26 p 31
Rabid Spending, June 12 p 35
Shopping Sprees Ahead? Feb 6 p 49

CONTINUOUS CASTING
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15
Reynolds Orders Three "New Generation" Casters, Mar 20 p 62
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9
Two Japanese Steelmakers Claim World Records, Jan 30 p MP-2

CONTROL SYSTEMS
How Centralized Control Effects Energy Savings, Feb 27 p MP-27

CONVAL CORP.
Valve Industry Wants Tougher Dumping Laws, May 1 p 12

J. F. COOGAN
Continuous Casting Molds Steelmaking Efficiency, G. J. McMannus, Apr 24 p MP-15

A. R. COOK
Coil Coaters Seek a 'Perfect' Galvanized Steel, by J. J. Obrzut, May 1 p 37

PETER G. COOK
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37

COOLANTS
Water Panels Keep Furnace Walls Cool, Jan 30 p MP-2

COOPER INDUSTRIES, INC.
Metalworking Racks Up Record Sales and Profits, Feb 13 p 21
Metalworking's Winners in Financial Reporting, Mar 13 p 28

MARSH A. COOPER
Competition is Killing Nickel, by R. J. Regan, May 15 p 29

W. PAUL COOPER
Auto Retooling is Aiding Machine Tool Orders, Jan 9 p 11
Automakers are Keeping Machine Tool Builders Busy, Mar 6 p 9
Don't Short Change R & D Spending — It Pays Off, Feb 27 p 16

CURT COPELAND
Need a Tough Bit? Try Strand-Cast Steel, Feb 27 p 33

COPPER
Clean Won't Come Cheaply for Copper, Study Says, Mar 20 p 62
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41
Copper Movement Not Enough to Spur Price Improvement, Jan 23 p 39
Copper Picks a Bad Time to Idle, May 22 p 104
Copper Price Returns to Its Roots, Mar 13 p 89
Copper Producers Find a Lucky Penny, Apr 24 p 68
Copper Producers Reach Verdict - Quota, Not Tariff, Mar 6 p 65
Copper Shipments Stay with Output - Unfortunately, May 8 p 88
Copper Stockpiling Has Carter Support - Udall, Mar 20 p 65
Copper Stats Still Pressure U. S. Producers, May 29 p 54
Copper's Latest Plea is a Loaded Question, by R. J. Regan, Mar 20 p 29
Copper's Price Stands on Shaky Ground, May 15 p 57
Duval's Price Balloon May Stay Airborne, Apr 10 p 155
For Copper, a Hectic Seven Days in May, June 5 p 92
For Want of 2.64 Cents a Profit Was Lost, Feb 27 p 41
Has Copper's Horse Already Been Stolen? June 19 p 93
High Regulatory Costs Drags Copper Down, Mar 27 p 75
Life with Copper Takes On New Meaning, by R. J. Regan, Feb 6 p 41
New Copper Standards Will Hit Copper Hard, May 15 p 20
New System Tosses Copper Prices to the Wind, June 26 p 53
Nonferrous: Energy Looms as Common Obstacle, Jan 2 p 151
Price Stability Comes to Copper Markets, Feb 20 p 63
Recyclers Can Help When Copper Runs Low, Mar 27 p 79
The Sky Is Falling on Copper Producers, by E. W. Bowers, Mar 27 p 39
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Zinc's Bad News Could Also be Copper's, June 12 p 58

COPPERWELD STEEL CO.
Copperweld Expects All Its Tubing to Score Tens, by G. A. Weimer, May 8 p 38

CORHART REFRACTORIES CO.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McMannus, Feb 27 p MP-13

CORNING GLASS WORKS
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

CORROSION
Corrosion is Our National Financial Disgrace, by J. J.Obrzut, Apr 3 p 41

THOMAS COSGROVE
Economics, Technical Gains Power Electric Furnace Use, by G. J. McMannus, Feb 27 p MP-13

COSMI, INC.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

CO-STEEL INTERNATIONAL, LTD.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
'Now's a Great Time to Build Steel Mills', Mar 27 p MP-3

DOUGLAS COSTLE
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39
EPA Lets Ohio Pollution Permit Stand, Jan 9 p 13
How Restrictive is EPA's Clean Air Act? Mar 13 p 18

CARL H. COTTERILL
Minerals Won't Get Hard to Come By, June 19 p MP-13

COUNCIL OF ECONOMIC ADVISERS
"Renewal of Inflationary Pressures Would be a Painful Reappraisal", Mar 13 p 41
Schultze Says Tax Plan Will Help Business, May 15 p 13
Will Federal Borrowing Bring On Credit Crunch? Mar 6 p 19

COUNCIL ON WAGE AND PRICE STABILITY
Aluminum's New Price is Still Airtight, May 15 p 60
Inflation Stays on Top, Apr 24 p 31
Look for Steel Sheet Price Hike About Aug 1, June 12 p 13
Now, Let's See What Happens, by Gene Beaudet, June 26 p 3
OK, Call the Cops . . . But on Whom? by Gene Beaudet, May 15 p 3
Regulations Hit Public, COWPS Director Concedes, Apr 24 p 13
Steel Price Increases Garner Mixed Reviews, Apr 10 p 17
Steel Seeks Compromise on Air Pollution Rules, June 26 p 14
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32

Steel Summary: Price Hikes Ill-Timed? Jan 9 p 39
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Zinc Life Signs are Hard to Find, Apr 24 p 64

R. D. COURSEN
Tin Stockpile Release Plan Raises Questions, Feb 27 p 13

CHARLES COURT
Sir Charles Hold Court on Australia's Future, June 12 p 57

WILLIAM COX
Capital Spending Fades, June 5 p 36
Indicators Lead Nowhere, May 29 p 37
Output Keeps Scoring, June 5 p 36
Productivity Tumbles, May 15 p 36

ROBERT CRANDALL
Trigger Price Mechanism Gets Some Close Analysis, Feb 13 p 11

W. DONOHAM CRAWFORD
Power to the People is Tougher to Deliver, Jan 23 p 13

W. R. CRAWFORD
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39

CREDIT
A Charge of Charge-Its, May 29 p 37
Credit Checked, Mar 27 p 42
Credit Demand May Surge in the Second Half, Mar 6 p 19
Why Short-Term Credit is Getting More Active, May 22 p 29

J. M. CREWS
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25

JOSEPH D. CRIDER
Japanese Don't Want to War over Trigger Prices, Mar 6 p 12

RALPH CROSS, SR.
Auto Retooling is Aiding Machine Tool Orders, Jan 9 p 11

CROSS CO.
Auto Retooling is Aiding Machine Tool Orders, Jan 9 p 11
Palletizing . . . Hot Trend in Automatic Parts Handling, by J. B. Pond and B. H. LeCerf, Apr 24 p 43
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

THOMAS CROWLEY
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

CRUCIBLE, INC.
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59
Power Drain Threatens Thousands of Jobs, Feb 20 p 65

DAVID CULVER
Alcan Plans to Be a Smart Shopper, Apr 3 p 63

CUMMINS ENGINE, INC.
Driving Market Forces Keep Diesels Going, by G. A. Weimer, June 26 p 21
Managers Seek Best Way to Adjust for Inflation, by P. J. Cathey, Feb 6 p 47
Metalworking Profits Have Surprising First Quarter, May 15 p 26

CURING
EB Curing Foils High Costs of Materials Coating, Mar 13 p 63

JAMES CURRIE
A M C's Bus Business Gets Red Light - No Orders, June 19 p 14

RICHARD T. CURTIN
Equal Time, Mar 20 p 33

CURTISS-WRIGHT CORP.
Copper Producers Find a Lucky Penny, Apr 24 p 68
High Regulatory Costs Drags Copper Down, Mar 27 p 75
Kennecott Ahead in Voting, Without 'Mislaid' Proxies, June 5 p 15
Kennecott, Curtiss-Wright Drawing Their Battle Lines, Apr 17 p 15
Kennecott Fought Hard to Stay in Control, May 15 p 18
Kennecott Shareholders Day of Decision - May 2, May 1 p 9
Results of Kennecott Proxy Battle Delayed, May 29 p 18
This Time, Kennecott's on the Inside Looking Out, Apr 3 p 61
What's Bringing Rotaries Back? by G. A. Weimer, May 8 p 31

CUTLER-HAMMER, INC.
Eaton Snaps Up a Third of Cutler-Hammer, June 26 p 14
Metals Merger Activity Continues to Swirl, May 1 p 10
When DISC Dies, So Will the Good That it's Done, by K. W. Bennett, Feb 6 p 37
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

CUTTING TOOLS
Automakers are Keeping Machine Tool Builders Busy, Mar 6 p 9
Double Your Output by High-Speed Broaching, by J. J. Obrzut, June 5 p 67
Interactive Graphics Mates with NC Flame Cutting, by R. R. Irving, Feb 13 p 46
Machine Tool Builders Wrap Up a Good Year, Feb 6 p 11
Machine Tool Shipments Seen Up 10 Pct this Year, Jan 23 p 11
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115
NC-CAD/CIM Report, by J. J. Pond, May 8 p 43
Product Liability 'Mess' Keeps Getting Messier, Mar 13 p 16

CYCLOPS CORP.
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59
Just Where Do Trigger Prices Misfire? Feb 6 p 11
Trigger Price Mechanism Gets Some Close Analysis, Feb 13 p 11

CYLINDERS
Tube Investments Plans Cylinder Plant in Oklahoma, Apr 24 p 15

D

W. G. DAHL
Competition is Killing Nickel, by R. J. Regan, May 15 p 29

DAIDO STEEL CO., LTD.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

FRANK DALEY
Consumers Re-Discover Their Emotions for Cars, Apr 3 p 13
GM's PUMA Robot Tackles Assembly Line Chores, June 5 p 12

FRANK DALTON
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

FRANK DANLEY
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20

THOMAS E. DARNTON
Small Car Design Will Change Tooling Market, Feb 20 p 12

DATA PROCESSING SYSTEMS
Computer Bundles Growth and Diversity Into Neater Package, Mar 27 p MP-45
Computer Prophecies Keep Laclede on Track, Apr 24 p MP-20
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

DATA RESOURCES, INC.
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44

JOSEPH DATSKO
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29

ETIENNE DAVIGNON
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

CARLTON DAVIS
Will Jamaica Make Advance Levies a Habit? Mar 27 p 73

DELMONT A. DAVIS
Ball Corp. Makes Certain Its Workers Understand, by C. T. Post, June 12 p 28

DONALD W. DAVIS
Metalworking Profits Have Surprising First Quarter, May 15 p 26

NATHANAEL V. DAVIS
Alcan Plans to Be a Smart Shopper, Apr 3 p 63

RANDY DAVIS
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

RUTH M. DAVIS
Technologies, Not Products, to Get Export Controls, by E. W. Bowers, June 19 p 47

DAVIS WALKER CORP.
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51

ALLEN W. DAWSON
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

DEAN WITTER, REYNOLDS & CO.
Anti-TPM Stance Drops Kaiser's Stock 3 Points, May 8 p 14

DEBURRING
ECD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 59

ANTHONY DE CARLO
Ask Not for Whom the Gavel Tolls, by Tom Dulaney, May 29 p 33

DEERE & CO.
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29
Electronics Helps Fastening Move from Art to Science, by R. R. Irving, June 26 p 32
Spring Life Signs Point to Fall Farm Machine Havest, by K. W. Bennett, May 1 p 32

DEFENSE
Chrysler Tank Subcontract Causes Concern, by E. W. Bowers, Apr 17 p 30
Futuristic Combat Planes, Apr 10 p 105
Government-Industry System Waves the Flag on Defects, by R. R. Irving, Jan 16 p 54
McDonnell Beats Boeing for Air Force Contract, Jan 9 p 13
Stockpile's Caretakers Plan to Go Shopping, Feb 6 p 14
Technologies, Not Products, to Get Export Controls, by E. W. Bowers, June 19 p 47
Without Bolts and Screws, U. S. Security is Threadbare, by E. W. Bowers, Feb 20 p 28

PAUL DEISLER
OSHA's Carcinogen Rules too Expensive, Study Says, Apr 10 p 18

W. J. DELANCEY
Republic's Cleanup Turns into a Buildup, Mar 27 p 11
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25

LOUIS DEMOLI
Construction's Next Build-Up Will be Harder to See, Joe Barks, May 29 p 28

CLARK DENSLOW
Weld Costs Plummet with Ultrasonics, by D. A. Van Cleave, Apr 3 p 48

DESULFURIZING
Magnesium Helps Steel Get the Sulfur Out, May 22 p MP-19

LESTER G. DETTERBECK, JR.
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

DEUTSCH, SHEA & EVANS, INC.
Job-Seekers Left Cold; Technical Demand Up, Mar 13 p 14
Technical Demand is Off and Running, Apr 17 p 16
Technical Job Market Declines in November, Feb 6 p 14

DEVELOPMENT ANALYSIS ASSOCIATES, INC.
Iceberg Transport Could Open New Industry, by D. A. Van Cleave, Feb 27 p 31

E. M. DE WINDT
U. S. Won't Face Problems, Says Eaton's de Windt, May 8 p 15
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

DIAL TUBE CO.
Tubing Capacity Swells as Technology Expands, June 12 p 16

DIE CASTINGS
Zinc Die Casting Markets Hold Steady, June 19 p 95

JACK L. DIEDERICH
Pricing Rigid Aluminum Sheet for Financial Performance, June 19 p 46

DIESEL ENGINES
Driving Market Forces Keep Diesels Going, by G. A. Weimer, June 26 p 21
GM Plans to Triple Diesel Engine Output, May 22 p 14
Water Emulsions Won't Be a "Tiger" in Your Tank, May 15 p 43

DIGITAL EQUIPMENT CORP.
Entry-Level Computers Attract Manufacturing, by A. M. Greene, May 1 p 42

ROBERT H. DILLARD
Plate Fabricators: Deep in the Heart of Houston, by R. R. Irving, May 8 p 59

DIMETRICS, INC.
Dimetrics Signs License for Soviet Technology, Apr 24 p 15

MARSHALL DIMOCK
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

S. DINDA
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29

THOMAS DINEEN
Energy Makers May Turn More to Water Power, Mar 13 p 17
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

DINGS MAGNETIC SEPARATOR CO.
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

DIRECT REDUCTION
Armco Comes Back to Direct Reduction Market, Jan 30 p MP-1
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15

MOSE DISOTELL
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

DOALL CO.
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p115

DOANE AGRICULTURAL SERVICE, INC.
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

K. F. DOCKUS
Nickel Coating Prepares Aluminum for Brazing, May 8 p 69

F. W. DODGE CORP.
Concrete Canoe Sinking? June 12 p 35
Construction At Its Peak? Feb 13 p 31
Construction Gets a Trim, Mar 20 p 33
Construction Runs On, May 15 p 36
Construciton Shows Depth, Apr 17 p 34

Construction's Next Build-Up Will be Harder to See, by Joe Barks, May 29 p 28
Iron and Steel Don't Share Construction Wealth, Apr 24 p 13

M. R. DODSON
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

MAX DODSON
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25

DOMESTIC INTERNATIONAL SALES CORP.
DISC Death Would Halve Export Incentives, Feb 13 p 13
Don't Throw Away DISC, Trade Council Warns, Apr 10 p 24
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
When DISC Dies, So Will the Good That it's Done, by K. W. Bennett, Feb 6 p 37

DOMINICAN REPUBLIC
Carribean Bauxite Loses Ground in U. S. Markets, by R. J. Regan, Mar 6 p 30

DOMINION FOUNDRIES AND STEEL, LTD.
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

ROBERT W. DONNAHOO
Labor Leaders, Managers Break Bread Together, June 12 p 14

JOHN J. DONOHUE
'78 May Be Another Year of the Gear, Mar 6 p 11

DOW CHEMICAL CO.
Magnesium Has the Price Other Metal Producers Envy, by R. J. Regan, Mar 27 p 35
Magnesium Helps Steel Get the Sulfur Out, May 22 p MP-19
New Capacity, Processes Boost Magnesium Output, June 19 p MP-6

J. F. DOYLE
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25

DRAFTING SYSTEMS
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

DRAVO CORP.
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25

DRAWING LUBRICANTS
"Warm Forming" Aluminum Extends Usage in Cars, Mar 20 p 42

JACK DREW
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

DRILLICK-LAMANNA CORP.
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

DRILLING
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

DUCOMMUN METAL & SUPPLY CO.
Service Centers' Expect to Ship 10 Pct More in '78, May 22 p 13
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

RICHARD DUKE
Trigger Prices May be Steelmakers' Only Hope, Jan 23 p 12

JOHN C. DUNCAN
Lead Industry Will Ride Along with Battery Market, Feb 13 p 63
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32

DUNN STEEL PRODUCTS DIV.
Need a Tough Bit? Try Strand-Cast Steel, Feb 27 p 33

E. I. DU PONT DE NEMOURS & CO.
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44

GEORGE DUPRE
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

DURABLE GOODS
Capital Spending Slips, Jan 16 p 32
Humbugs Slow December Sales, Jan 23 p 25
Need of Orders, Mar 13 p 42
Costs, Prices Run Fast, But Productivity Walks, by J. D. Baxter, Apr 3 p 35
Orders Hang On, May 8 p 41
Capital Spending Fades, June 5 p 36

MARTIN R. DURBEC
Entry-Level Computers Attract Manufacturing, by A. M. Greene, May 1 p 42

M. J. DURNING
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39

DUVAL CORP.
Duval's Price Balloon May Stay Airborne, Apr 10 p 155
For Copper, a Hectic Seven Days in May, June 5 p 92

LARRY DUVALL
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58

DWIGHT INSTRUMENT CO.
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

DYE PENETRANTS
High Technology Erupts on the NDT Scene, by R. R. Irving, May 15 p 39

E

ECD DIV.
ECD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 59

E-E CAST EQUIPMENT CO.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

EASTERN STEEL & METAL CO.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

EATON CORP.
Eaton Snaps Up a Third of Cutler-Hammer, June 26 p 14
Eaton's Interest in Air Bag Market Evaporates, Jan 30 p 15
Test Engine Doesn't Meet Expectations, Ford Says, Jan 30 p 15
U. S. Won't Face Problems, Says Eaton's de Windt, May 8 p 15
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

J. P. EBERHART
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59

HOWARD ECKER
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

HOWARD ECKER & CO.
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

ECONOMETRICS
Riding Economy Will Be Safe, But Not Smooth, Mar 27 p 15

ECONOMICS
After a Wild and Crazy Quarter, a 2-Year Hangover, June 26 p 12
As Sound As . . . You Bet! by Gene Beaudet, Jan 23 p 3
Business Council Sees Slower Growth, June 12 p 17
Can You Believe These Guys? by Gene Beaudet, Mar 13 p 3
Carter Fires First Salvo in Anti-Inflation Battle, Apr 24 p 12
Distress Signals, Mar 13 p 42
Dollar's Drop Abroad Hits Business at Home, May 29 p 23
Double-Digit Time, June 12 p 35
Economic Climate Nourishes Bumper Crop of Mergers, Jan 30 p 19
Economy Should Keep Scoring in '78-Keeps, Jan 23 p 12
Financial Men Tell What's Holding Economy Back, Feb 6 p 35
If This Be Unpatriotic . . . Then I'll Eat My Hat, by Gene Beaudet, June 12 p 3
Indicators Go 10-2, Feb 20 p 34
Indicators Lead Nowhere, May 29 p 37
Indicators Run Late, Apr 17 p 34
Inflation is Incredible Hulk to Metalworking, Companies, by J. D. Baxter, June 19 p 41
Inflation Rate Could Rise to 8 Pct, Economist Warns, Jan 30 p 18
Inflation Stays on Top, Apr 24 p 31
Meany Stalls Carter's Fight Against Inflation, May 22 p 11
Metalworking 1978 as Seen by 100 Analysts, by J. D. Baxter, Feb 20 p 25
The New Eximbankers Foreclose On Apathy, by E. W. Bowers, Feb 13 p 22
OK, Call the Cops . . . But on Whom? by Gene Beaudet, May 15 p 3
The Party's Over, June 26 p 31
The Postponable Recession, by Gene Beaudet, Apr 10 p 3
Rabid Spending, June 12 p 35
"Renewal of Inflationary Pressures Would be a Painful Reappraisal", Mar 13 p 41
Riding Economy Will Be Safe, But Not Smooth, Mar 27 p 15
So, Color Me Predictable, by Gene Beaudet, Jan 9 p 3
This Comes as a Surprise? by Gene Beaudet, Mar 6 p 3
Three for the Money, Jan 16 p 32
U. S. Won't Face Problems, Says Eaton's de Windt, May 8 p 15
We Now Have Two Ways to Watch Prices Rise, by Michael Marley, Mar 13 p 34
What this Country Needs is an Investment Policy, May 15 p 16
When a Dollar Floats, Will Interest Rates Sink? Apr 24 p 25
Why Not Give Inflation a Chance? by Gene Beaudet, June 5 p 3
Will Federal Borrowing Bring On Credit Crunch? Mar 6 p 19

S. E. EDELMAN
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

EDELSTAHLWERKE FREITAL
Will Plasma Steelmaking Replace the Electric Furnace? Apr 24 p MP-29

EDGCOMB METALS CO.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

EDISON ELECTRIC INSTITUTE
It's Getting Harder to Get Power to the People, by G. J. McManus, Mar 6 p 26
Power to the People is Tougher to Deliver, Jan 23 p 13

EDITORIALS
The Business Issues - by Gene Beaudet

CARL EDLUND
New Coke Quench Data Jolts Steel Mills, by G. J. McManus, Jan 30 p MP-5

HOWARD EDWARDS
What's Being Done About Off-Limits Minerals Lands? by E. W. Bowers, Mar 13 p 31

PETER EHRENHAFT
The Big Gun Behind Trigger Prices, by Tom Dulaney, Mar 6 p 21
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51
Trigger Price Crackdown Coming Up Soon, June 26 p 11
Trigger Price Mechanism Gets Some Close Analysis, Feb 13 p 11
Trigger Price Questions? Here's Who to Call, Mar 13 p 14
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28

ELCO INDUSTRIES, INC.
Communications and Costs Can Alter the Bottom Line, by K. W. Bennett, June 26 p 28
Metalworking Racks Up Record Sales and Profits, Feb 13 p 21

ELECTRIC AUTOMOBILES
Battery Breakthrough Recharges Electric Auto, by G. A. Weimer, Apr 24 p 32
Breakthrough Recharges Electric Car's Future, Mar 27 p 16
Electric Vehicles: Reality by Mid-1980's? June 26 p 39

ELECTRIC BOAT DIV.
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

ELECTRIC FURNACES
Atlas Turns to Sanyo for Electric Furnace Info, Mar 27 p 75
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
Steel Output Fell in '77; Shipments Rose Slightly, Feb 27 p 41
Water Panels Keep Furnace Walls Cool, Jan 30 p MP-2
Will Plasma Steelmaking Replace the Electric Furnace? Apr 24 p MP-29

ELECTRIC POWER CONSUMPTION
Making the Most of a Computerized Energy System, Mar 13 p 63
Power Demand Expected to Double by 1990, Apr 10 p 25
Energy Makers May Turn More to Water Power, Mar 13 p 17
It's Getting Harder to Get Power to the People, by G. J. McManus, Mar 6 p 26
Power Drain Threatens Thousands of Jobs, Feb 20 p 65
Power to the People is Tougher to Deliver, Jan 23 p 13
Steel Summary: Orders Up, But It's Hard to Say Why, Feb 27 p 39

ELECTRIC POWER RESEARCH INSTITUTE
Refueling Fuel Cell Power Research, May 29 p 44

ELECTRIC UTILITIES
It's Getting Harder to Get Power to the People, by G. J. McManus, Mar 6 p 26
Power to the People is Tougher to Deliver, Jan 23 p 13

ELECTRICAL EQUIPMENT
Steady Gains and Shaky Confidence, Jan 2 p 17

ELECTROCHEMICAL DEBURRING
ECD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 59

ELECTRON BEAM WELDING CO.
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

ELECTRON BEAMS
EB Curing Foils High Costs of Material Coating, Mar 13 p 63
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

ELECTRONIC DEVICES & CONTROLS
Electronics Helps Fastening Move from Art to Science, by R. R. Irving, June 26 p 32

ELECTROPLATING
Add Carbon Black to Plastic for Direct Plateability, by J. J. Obrzut, Jan 30 p 30
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39

THOMAS ELLIOTT
Anti-TPM Stance Drops Kaiser's Stock 3 Points, May 8 p 14

ELLWOOD STEEL CASTING CORP.
Search for Oil Helps Ekeast Strike It Rich, Jan 30 p MP-2

ELYRIA FOUNDRY DIV.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

LEE EMERSON
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28

EMERSON ELECTRIC CO.
When DISC Dies, So Will the Good That it's Done, by K. W. Bennett, Feb 6 p 37

EMPLOYMENT
Facelift for Jobless Rate, Jan 9 p 21
Fewer Idle Hands, Mar 27 p 42
From Boston to Berlin, Job Market Picks Up, May 15 p 13

Hard Act to Follow, Feb 20 p 34
Help-Wanted, Jobless Rates Continue to Disagree, Jan 16 p 13
Job-Seekers Left Cold; Technical Demand Up, Mar 13 p 14
Jobless Figures Hinder Battle Against Inflation, June 19 p 18
Jobless Rate Up, June 19 p 50
Labor Does the Job, Jan 23 p 25
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
Sure Signs of Good Times: There's More Hiring, June 12 p 14
Technical Demand is Off and Running, Apr 17 p 16
Technical Job Market Declines in November, Feb 6 p 14
Unemployment Down, May 22 p 36

EMULSIONS
Water Emulsions Won't Be a "Tiger" in Your Tank, May 15 p 43

ENDICOTT PENINSULA
Proposed Wilderness Area is Rich in Minerals, May 15 p 19

ENERGY
A Close Encounter of the Eye-Opening Kind, Apr 24 p 29
Energy Costs by 1985; Energy Mix by 2000 A. D., Apr 3 p 14
Energy Makers May Turn More to Water Power, Mar 13 p 17
Energy Needs to Outpace Domestic Supply in 1980's, May 22 p 16
Energy Savings Begin with Building Design, by P. J. Cathey, Apr 10 p 53
Few Energy-Saving Miles in Gas Tax, Ford Exec Says, Apr 17 p 12
How Centralized Control Effects Energy Savings, Feb 27 p MP-27
Hunt for Energy Turns to Cow Pasture, Apr 3 p 15
It's Getting Harder to Get Power to the People, by G. J. McManus, Mar 6 p 26
Making the Most of a Computerized Energy System, Mar 13 p 63
Making Success Out of Risk in a Crisis Marketplace, by G. A. Weimer, Jan 9 p 16
Nonferrous: Energy Looms as Common Obstacle, Jan 2 p 151
Power Demand Expected to Double by 1990, Apr 10 p 25
Power Drain Threatens Thousands of Jobs, Feb 20 p 65
Power to the People is Tougher to Deliver, Jan 23 p 13
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
Steel Summary: Orders Up, But It's Hard to Say Why, Feb 27 p 39

ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
See Also: U. S. Department of Energy

ENERGY SCIENCES INC.
EB Curing Foils High Costs of Material Coating, Mar 13 p 63

ENERGY SYSTEMS, INC.
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

W. H. ENGELLEITNER
Slag, Fines and Fume - Steel's New Raw Material, by G. J. McManus and G. A. Weimer, May 22 p MP-15

ENGINEERING SINTERING & PLASTICS, INC.
Robot Ends Worker Fatigue in Hot PM Forging, Jan 23 p 32

ENGINEERS
Job-Seeking Left Cold; Technical Demand Up, Mar 13 p 14
Technical Demand is Off and Running, Apr 17 p 16
Technical Job Market Declines in November, Feb 6 p 14

FRED C. ENGLISH
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

ENVIRODYNE, INC.
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18

ENVIRONEERING, INC
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

ENVIRONMENT
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25
Radials, Tinted Glass and a 50,000 Mile Gas Gap, May 8 p 35

ENVIRONMENTAL PROTECTION AGENCY
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39
Clean Won't Come Cheap for Copper, Study Says, Mar 20 p 62

ENVIRONMENTAL PROTECTION ADMINISTRATION
EPA Lets Ohio Pollution Permit Stand, Jan 9 p 13
Ford Ready to Revise its Fuel-Economy Guide, Apr 24 p 14
Government's Regulatory Game is Dirty Pool, May 15 p 35
High Regulatory Costs Drags Copper Down, Mar 27 p 75
How Restrictive is EPA's Clean Air Act? Mar 13 p 18
A Hush Will Fall Over OSHA-EPA Noise Squabble, May 22 p 14
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65
New Coke Quench Data Jolts Steel Mills, by G. J. McManus, Jan 30 p MP-5
New EPA Water Rules Displease Metal Platers, Mar 27 p 17
Pollution Control Recall May Cost AMC over $1 Million, May 29 p 17
The Sky Is Falling on Copper Producers, by E. W. Bowers, Mar 27 p 39
Steel Seeks Compromise on Air Pollution Rules, June 26 p 14
Steel Summary: Bridging the Gap? June 5 p 92

GENE EPPINGER
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

M. M. EPSTEIN
Cables and Structures Share Research Spotlight, May 29 p 44

THOMAS ERICKSON
QC Circles Spur Productivity, Improve Product Quality, by R. R. Irving, June 5 p 61

ERMAN-HOWELL DIV.
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

E. M. ESTES
GM Plans to Triple Diesel Engine Output, May 22 p 14
It Costs GM $2 Billion to Save 1 MPG, Mar 13 p 17
Speeding Automakers Fight to Hold the Road, Jan 23 p 11

EUROPE
Across the Atlantic, Aluminum Stays Afloat, by R. J. Regan, Apr 24 p 27

EUROPEAN ASSN. OF NATIONAL PRODUCTIVITY CENTERS
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

EUROPEAN ECONOMIC COMMUNITY
Auto Output Forecast for European Nations, May 22 p 14
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
World Steel Spurted, then Spluttered, June 19 p MP-3

VAN M. EVANS
Job-Seekers Left Cold; Technical Demand Up, Mar 13 p 14

EX-CELL-O CORP.
Auto's Weight Loss is Machine Tools' Gain, Apr 3 p 9

EXECUTIVES
Business Execs Underpaid, Says A-T-O's Figgie, May 29 p 15
Financial Execs Worry More, Get Paid More, Feb 20 p 21
From Boston to Berlin, Job Market Picks Up, May 15 p 13
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58
Top Executives Received 12 Pct Pay Boost in '77, June 19 p 12

EXHAUST EMISSIONS
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25

EXHIBITS
1978 Meetings and Conventions, Jan 2 p 116

EXPORT-IMPORT BANK
Eximbank on Course for 5-Year Extension, May 15 p 16
Extend Life of Eximbank, Tool Builders Urge, Apr 3 p 13
The New Eximbankers Foreclose On Apathy, by E. W. Bowers, Feb 13 p 22

EXPORTS
Competition is Killing Nickel, by R. J. Regan, May 15 p 29
Encourage Exports, Says Commerce's Weil, May 29 p 17
How You Can Get Government Export Marketing Help, Jan 2 p 79
Japan Braces for Drop in Machine Tool Exports, Apr 3 p 12
Japanese Don't Want to War Over Trigger Prices, Mar 6 p 12
Technologies, Not Products, to Get Export Controls, by E. W. Bowers, June 19 p 47
What U. S. Export Policy Must Contain, Apr 17 p 12

F

FMC CORP.
Commercial Marketing of FMC's Formcoke Process, Feb 27 p MP-28
Incentive Lack Threatens U. S. High Technology Lead, Mar 20 p 15
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

FAB-TEC DIV.
Palletizing . . . Hot Trend in Automatic Parts Handling, by J. B. Pond and B. H. LeCerf, Apr 24 p 43

FAILURE ANALYSIS
Government-Industry System Waves the Flag on Defects, by R. R. Irving, Jan 16 p 54

FALCONBRIDGE NICKEL MINES, LTD.
Competition is Killing Nickel, by R. J. Regan, May 15 p 29

J. M. FARINA
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

FARM EQUIPMENT
Driving Market Forces Keep Diesels Going, by G. A. Weimer, June 26 p 21
Farm Machinery Market Appears Due for Upsurge, Apr 17 p 16
Imports Start Cropping Up in Farm Equipment Market, May 1 p 10
Spirits are Down on the Farm, May 1 p 33
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

FARRELL CO.
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

FASTENERS
Aircraft Makers Prepare for Smooth Takeoff, by B. H. LeCerf, June 12 p 32
Carter's Fastener Decision May Not Hold Up, Feb 27 p 14
Challenge on Fasteners Has a Long Road Ahead, Mar 27 p 15
Electronics Helps Fastening Move from Art to Science, by R. R. Irving, June 26 p 32
Fasteners Delegation Takes Case to D. C., Feb 6 p 15
Fastener Lobbyists are Working Overtime, May 1 p 9
Fastener Makers Defy Administration on Imports, by G. A. Weimer, June 5 p 31
Fastener Makers Won't Abandon Import Fight, May 8 p 11
Government-Industry System Waves the Flag on Defects, by R. R. Irving, Jan 16 p 54
Hearings May be Held on Fastener Import Relief, Mar 13 p 15
Without Bolts and Screws, U. S. Security is Threadbare, by E. W. Bowers, Feb 20 p 28
Why British Leyland is Sold on Electronic Bolt Tightening, by R. R. Irving, June 12 p 44

FATIGUE (MECHANICS)
NDT Methods Combine to Tackle Stress, Apr 10 p 105

FEDERAL HOME LOAN MORTGAGE CORP.
Housing's on the Run, June 5 p 36

FEDERAL MEDIATION AND CONCILIATION SERVICE
Labor Leaders, Managers Break Bread Together, June 12 p 14

FEDERAL PREPAREDNESS AGENCY
War and Peace Study Plots Aluminum's Future, by E. W. Bowers, May 1 p 30
Without Bolts and Screws, U. S. Security is Threadbare, by E. W. Bowers, Feb 20 p 28

FEDERAL RESERVE BOARD
Credit Checked, Mar 27 p 42
Production Comes Alive, May 1 p 29
Small Consolation, Jan 30 p 25
Steel's World is Troubled, Distributors are Told, June 12 p 13
What Kind of Chairman Will William Miller Be? Jan 9 p 11
When a Dollar Floats, Will Interest Rates Sink? Apr 24 p 25
Why the Prime Rate Keeps on Rising, Jan 23 p 18
Worth the Effort, Apr 3 p 39

FEDERAL SCREW WORKS
Fastener Makers Defy Administration on Imports, by G. A. Weimer, June 5 p 31

FEDERAL TRADE COMMISSION
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65
Please, Fellow, Cut Out the Hype, by Gene Beaudet, Feb 6 p 3
Trigger Prices May be Steelmakers' Only Hope, Jan 23 p 12

FRANK J. FEELY, JR.
Voluntary Standards: Everyone Wants In, by J. J. Obrzut, May 29 p 39

FEHR BROS.
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25

FENN MFG. CO.
ECD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 59

FERGUSON MFG. CO.
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

FERRO CORP.
Metalworking Profits Have Surprising First Quarter, May 15 p 26

FERROCHROMES
Union Carbide, Domestic Ferrochrome Producers Clash, Jan 30 p 39

FERROSLAG DIV.
Slag, Fines and Fume - Steel's New Raw Material, by G. J. McManus and G. A. Weimer, May 22 p MP-15

FIBERGLASS
Army Gets High on Fiberglass Blades, June 26 p 39

FIBER OPTICS
High Technology Erupts on the NDT Scene, by R. R. Irving, May 15 p 39

FIBERS
Pultrusion: Composites' Road to Mass Production, by C. T. Post, Jan 30 p 27

A. H. FIESER
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

E. S. FIFE
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

A. C. FIFER
Financial Men Tell What's Holding Economy Back, Feb 6 p 35

HARRY E. FIGGIE, JR.
Business Execs Underpaid, Says A-T-O's Figgie, May 29 p 15

FILTERING
Increased Filtering R & D Screens Out Snags, Apr 24 p MP-3

FINANCE
Alcoa's Profits Up, Despite Dip in Shipments Tonnage, May 1 p 55
Count on Short-Term Interest Rates to Rise, Mar 27 p 27
Credit Demand May Surge in the Second Half, Mar 6 p 19
Currency Fluctuations Distort Earnings, June 5 p 29
Don't Short Change R & D Spending - It Pays Off, Feb 27 p 16
Don't Throw Away DISC, Trade Council Warns, Apr 10 p 24
Don't Worry About Impact of Swelling Pension Funds, Jan 16 p 21
Extend Life of Eximbank, Tool Builders Urge, Apr 3 p 13
Financial Men Tell What's Holding Economy Back, Feb 6 p 35
Financial Reports Conceal the Capital Shortfall, Jan 9 p 15
A Five-Year Profit Gain is Really a Loss, May 8 p 29
How Can Metalworking Stop Liquidating Itself? June 12 p 21
Improved Cash Flow Was Overplayed in '77, Mar 20 p 22
Is Getting the Multiplier Up a Downer? by Gene Beaudet, June 19 p 3
Is Short-Term Borrowing Getting Out of Hand? May 15 p 26
It's Time to Watch Inventory-Sales Ratio, May 8 p 29
Keep Cash Flowing through Capital Spending, May 1 p 21
Loan Guarantee Program for Steel Unveiled, Apr 3 p 9
Managers Seek Best Way to Adjust for Inflation, by P. J. Cathey, Feb 6 p 47
Metalworking Boosts Returns on Sales and Assets, by J. D. Baxter, May 22 p 39
Metalworking Profits Grow in '78s First Quarter, May 29 p 23
Metalworking Profits Have Surprising First Quarter, May 15 p 26
Metalworking Racks Up Record Sales and Profits, Feb 13 p 21
Metalworking's Winners in Financial Reporting, Mar 13 p 28
Needed by the Board - An Audit Committee, Apr 10 p 49
The New Eximbankers Foreclose On Apathy, by E. W. Bowers, Feb 13 p 22
Nothing is More Crucial than Knowing Real Costs, Jan 23 p 18
Orders Hang On, May 8 p 41
Pathways Leading to a Healthy Bottom Line, Apr 3 p 24
Profits Companies Saw are Not What They Got, Apr 24 p 25
A Profit is Not Without Honor, Save in Its Own Country, Apr 10 p 63
Profits in '77 - Good, But Not Great, Year for Most! Mar 27 p 27
Profits Decline to Record High - How's That, Again? by J. D. Baxter, Apr 17 p 25
Reducing Debt Structure Gets Top Priority, Apr 17 p 23
Some New Semantics for the Word 'Profit', Apr 17 p 23
Steel Hit Bottom in '77, Nonferrous Had Mixed Year, by P. J. Cathey and R. J. Regan, Apr 24 p 35
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
There are Ways to Avoid Capital Goods Cycles, May 22 p 29
What Makes Up an Award Winning Annual Report, Feb 27 p 16
When DISC Dies, So Will the Good That it's Done, by K. W. Bennett, Feb 6 p 37
Who Says Business Isn't Borrowing at a Strong Level? Jan 16 p 21
Why the Prime Rate Keeps on Rising, Jan 23 p 18
Will Federal Borrowing Bring On Credit Crunch? Mar 6 p 19
Why Short-Term Credit is Getting More Active, May 22 p 29

FINANCIAL ANALYSTS FEDERATION
Metalworking's Winners in Financial Reporting, Mar 13 p 28
What Makes Up an Award Winning Annual Report, Feb 27 p 16

FIRE ENGINES
Hanging Platform for High Altitude Rescue Work, Jan 16 p 56

FIRST NATIONAL BANK OF CHICAGO
Don't Worry About Impact of Swelling Pension Funds, Jan 16 p 21

FIRST PENNSYLVANIA BANK
Needed by the Board - An Audit Committee, Apr 10 p 49
Why the Prime Rate Keeps on Rising, Jan 23 p 18

E. J. FISCH
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

FISHER BODY DIV.
Computers Will Select Future Auto Materials, by K. W. Bennett Feb 27 p 29
Small Car Design Will Change Tooling Market, Feb 20 p 12

CHRISTOPHER J. FISHER
Vibratory Stress Relief: Black Magic or Cure-All? by R. R. Irving, Apr 17 p 56

MORLAN FITERMAN
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

F. B. FITZGERALD
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

RICHARD FITZSIMMONS
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53
Aircraft Makers Prepare for Smooth Takeoff, by B. H. LeCerf, June 12 p 32

WILLIAM F. FLAHERTY
Don't Let Zinc Prices Fall to the Bottom, ITC Told, Mar 20 p 61
Import Redress Will Take Time for Zinc Producers, Jan 16 p 69
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27

FLAME CUTTING
Interactive Graphics Mates with NC Flame Cutting, by R. R. Irving, Feb 13 p 46

FLETCHER-THOMPSON, INC.
Construction's Next Build-Up Will be Harder to See, by Joe Barks, May 29 p 28
Energy Savings Begin with Building's Design, by P. J. Cathey, Apr 10 p 53

F. L. FLOM
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

J. V. FLORCHACK
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

FLORIDA STEEL CORP.
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

FOAM MATERIALS
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44

FOAMS
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44

CHARLES F. FOGARTY
Don't Hold Your Breath Where Zinc's Concerned, May 8 p 91

FOOD AND DRUG ADMINISTRATION
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39

HENRY FORD II
Ford Will Spend a Record $2.5 Billion in '78, Jan 9 p 14
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65
U. S. Auto Sales Overcome Winter Breakdowns, Apr 10 p 18

WILLIAM D. FORD
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

FORD MOTOR CO.
Auto Sales Spurt in Post-Blizzard Boost, Mar 6 p 10
Automakers Confident Despite Sales Chill, Feb 27 p 11
Automakers Rev Up to the Industry's Challenges, May 8 p 15
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26
Few Energy-Saving Miles in Gas Tax, Ford Exec Says, Apr 17 p 12
Ford Ready to Revise its Fuel-Economy Guide, Apr 24 p 14
Ford Will Spend a Record $2.5 Billion in '78, Jan 9 p 14
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9
Leisure Vehicles are Out of the Woods, May 1 p 11
Life in the State Regulatory Jungle and How It has Business in a Bind, by G. A. Weimer, Apr 10 p 65
Machine Tool Makers Like Near-Term Outlook, Apr 10 p 28
Playing the "What If" Game in Future Auto Design, by D. A. Van Cleave, Feb 13 p 49
A Profit is Not Without Honor, Save in Its Own Country, Apr. 10 p 63
Search is On to Improve Productivity, Feb 13 p 21
Speeding Automakers Fight to Hold the Road, Jan 23 p 11
Test Engine Doesn't Meet Expectations, Ford Says, June 30 p 15
U. S. Auto Sales Overcome Winter Breakdowns, Apr 10 p 18
U. S. Foreign Automakers Set Monthly Sales Record, June 19 p 14
Which Road for Detroit: Small or More Complex? June 26 p 13
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20

STUART FORDYCE
Battery Breakthrough Recharges Electric Auto, by G. A. Weimer, Apr 24 p 32

FORECASTING
After a Wild and Crazy Quarter, a 2-Year Hangover, June 26 p 12
Auto Output Forecast for European Nations, May 22 p 14
Automakers Still Expecting Sales to Climb this Year, Apr 17 p 12
Business Council Sees Slower Growth, June 12 p 17
Business Issue of the Year . . . and Beyond, by Gene Beaudet, Jan 2 p 3
Computer Prophecies Keep Laclede on Track, Apr 24 p MP-20
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29
Construction's Next Build-Up Will Be Harder to See, by Joe Barks, May 29 p 28
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41
Count on Short-Term Interest Rates to Rise, Mar 27 p 27
Credit Demand May Surge in the Second Half, Mar 6 p 19
Distress Signals, Mar 13 p 42
Economy Should Keep Scoring in '78-Kreps, Jan 23 p 12
Energy Costs by 1985; Energy Mix by 2000 A. D., Apr 3 p 14
Energy Needs to Outpace Domestic Supply in 1980's, May 22 p 16
Farm Machinery Market Appears Due for Upsurge, Apr 17 p 16
Futuristic Combat Planes, Apr 10 p 105
Indicators Go 10-2, Feb 20 p 34
Inflation Rate Could Rise to 8 Pct, Economist Warns, Jan 30 p 18
Inland Likes What it Sees Ahead, June 12 p 58
Machine Tool Makers Like Near-Term Outlook, Apr 10 p 28
Machine Tool Shipments Seen Up 10 Pct this Year, Jan 23 p 11
Metalworking 1978 as Seen by 100 Analysts, by J. D. Baxter, Feb 20 p 25
New Year Promises More of the Same for Inco, Jan 9 p 39
'78 May Be Another Year of the Gear, Mar 6 p 11
1986 Aluminum Capacity Won't Meet Demand - Battelle, Jan 30 p MP-1
Oil Imports Will Level Off, Not Decline, this Year, Jan 16 p 14
Plant Construction Work May Boom in 1980s, May 29 p 17
Power Demand Expected to Double by 1990, Apr 10 p 25
Riding Economy Will Be Safe, But Not Smooth, Mar 27 p 15
Service Centers Expect to Ship 10 Pct More in '78, May 22 p 13
Service Centers - a Good '77 -Prospects of Better '78, Feb 6 p 89
Shopping Sprees Ahead? Feb 6 p 49
Steady Gains and Shaky Confidence, Jan 2 p 17
Steel Companies are Ready to Make their Move, Apr 17 p 79
Steel Summary: Summer Could Be Hot, May 15 p 57
Steel: '78 Rides on More Use, Fewer Imports, Jan 2 p 151
Steel Summary: What's Beyond the June Horizon? May 1 p 53
War and Peace Study Plots Aluminum's Future, by E. W. Bowers, May 1 p 30
What's Different for Aluminum in '78, by R. J. Regan, Jan 16 p 22
When Lead Price Will Drop is Anyone's Guess, Mar 27 p 78
The Worst May be Over for Metalworking in '78, May 22 p 12

FOREIGN INVESTMENTS
Dollar's Drop Abroad Hits Business at Home, May 29 p 23
Metalworking's Merger Fever Hits New High, by P. J. Cathey, June 12 p 23

FOREIGN TRADE
AFL-CIO Comes Out Strong for Protectionism, Mar 6 p 11
Another $2.4 Billion U. S. Trade Deficit in January, Mar 20 p 14
April Deficit Widens U. S. Trade Gap, June 12 p 17
As Sound As . . . You Bet! by Gene Beaudet, Jan 23 p 3
Carter's Fastener Decision May Not Hold Up, Feb 27 p 14
Competition is Killing Nickel, by R. J. Regan, May 15 p 29
DISC Death Would Halve Export Incentives, Feb 13 p 13
Don't Throw Away DISC, Trade Council Warns, Apr 10 p 24
Encourage Exports, Says Commerce's Weil, May 29 p 17
Fastener Makers Won't Abandon Import Fight, May 8 p 11
Fasteners Delegation Take Case to D. C., Feb 6 p 15
Free Trade is a Myth in the World Steel Market, Apr 17 p 32
How You Can Get Government Export Marketing Help, Jan 2 p 79
Inport Oil Flood Drowns U. S. Trade Balance, Feb 13 p 12
Import Welcome Extended by Japan to U. S., Mar 27 p 17
Industry Wants Tighter Buy-American Rules, Apr 3 p 14
Japan Braces for Drop in Machine Tool Exports, Apr 3 p 12
Japan Ponders 10-Point Trade Pact with U. S., Jan 23 p 14
Look for Conservative Stance in Trade Talks, Feb 27 p 13
Machine Tools to China Could Spark U. S. Economy, Mar 27 p 16
The New Eximbankers Foreclose on Apathy, by E. W. Bowers, Feb 13 p 22
Panel to Monitor Trade Between U. S. and Japan, May 8 p 18
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
Steel Summary: Trigger Prices Fire Two Blanks, Jan 16 p 69
Surplus Predicted in U. S.-China Trade, June 26 p 11
Technologies, Not Products, to Get Export Controls, by E. W. Bowers, June 19 p 47
Trading Nations Should Go One-on-One, June 26 p 27
Treasury Aide Predicts Narrower Trade Deficits, June 19 p 11

Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
U. S. Asked to Encourage Coal Exports to Japan, May 1 p 11
U. S. Companies Plan More Spending Abroad, Apr 10 p 26
U. S. Trade Deficit Goes from Worse to Bad, May 8 p 11
Union Carbide, Domestic Ferrochrome Producers Clash, Jan 30 p 39
Valve Producers Cite Pressure from Imports, Feb 13 p 12
What U. S. Export Policy Must Contain, Apr 17 p 12
When DISC Dies, So Will the Good That it's Done, by K. W. Bennett, Feb 16 p 37
Why Signode is Commited to International Trade, June 26 p 19
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
Without Bolts and Screws, U. S. Security is Threadbare, by E. W. Bowers, Feb 20 p 28
World Steel Trade: The View from Japan, by G. J McManus, Mar 27 p 29
World Trade Enters a Year of Crisis, Jan 30 p 15

FORGING INDUSTRY
Automatic Hot-Forming Takes a Quantum Jump, by J. B. Pond, Mar 20 p 43
Noise Control Among Forgers is More than a Whisper, by J. J. Obrzut, Mar 13 p 65

FORGING INDUSTRY ASSN.
Aircraft Makers Prepare for Smooth Takeoff, by B. J. LeCerf, June 12 p 32

FORGING INDUSTRY EDUCATIONAL AND RESEARCH FOUNDATION
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39
Noise Control Among Forgers is More than a Whisper, by J. J. Obrzut, Mar 13 p 65

FORGINGS
Aircraft Makers Prepare for Smooth Takeoff, by B. H. LeCerf, June 12 p 32
Robot Ends Worker Fatigue in Hot PM Forging, Jan 23 p 32

HOWARD I. FORMAN
Voluntary Standards: Everyone Wants In, by J. J. Obrzut, May 29 p 39

FORMING TECHNOLOGY CO.
Automatic Hot-Forming Takes a Quantum Jump, by J. B. Pond, Mar 20 p 43

FORMMET CORP.
Core Crushing: A Problem in Big Bearing Design, by G. A. Weimer, June 5 p 70

FOSTER SNELL, INC.
OSHA's Carcinogen Rules too Expensive, Study Says, Apr 10 p 18

FOUNDATION FOR PUBLIC AFFAIRS
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

FOUNDRY INDUSTRY
Founders Cast Lines for Government Understanding, Mar 6 p 10
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31
Foundry Equipment Makers Report Gains in Orders, May 8 p 19
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65
A Safe Foundry is Hard to Produce, Apr 24 p MP-3
Search for Cast Scrap Knows No Boundaries, Apr 24 p 68

L. W. FOY
Japan Wins Another Battle, But Not the War, May 22 p 107
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Steel Hit Bottom in '77: Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Steelmakers are Bullish, But is '78 a China Shop? by G. J. McManus, June 5 p 40

GEORGE FRAHM
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

GENE FRANK
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32

FRANKLIN INSTITUTE RESEARCH LABORATORIES
Core Crushing: A Problem in Big Bearing Design, by G. A. Weimer, June 5 p 70

DOUGLAS FRASER
GM's Southern Hospitality is Absent, UAW Charges, June 12 p 14
VW Went Peacefully into UAW's Fold, June 26 p 14

JOSEPH R. FRAZIER
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

FREIGHT RATES
ICC Approves Boost in Rail Freight Rates, June 19 p 14

LEE FRENCH
Slag, Fines and Fume - Steel's New Raw Material, by G. J. McManus and G. A. Weimer, May 22 p MP-15

FRIEDMAN INDUSTRIES, INC.
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

E. R. FRIESTH
Electronics Helps Fastening Move from Art to Science, by R. R. Irving, June 26 p 32

KURT C. FRISH
Iceberg Transport Could Open New Industry, by D. A. Van Cleave, Feb 27 p 31

KARL H. FROELICH
Vibratory Stress Relief: Black Magic or Cure-All? by R. R. Irving, Apr 17 p 56

FROST & SULLIVAN INC.
A Hush Will Fall Over OSHA-EPA Noise Squabble, May 22 p 14
NC-CAD/CIM Report, by J. B. Pond, June 5 p 45
Russia Needs to Import Machine Tools, Study Says, June 5 p 16

FRUEHAUF CORP.
1st Quarter Leads Convoy to a Good Truckin' Year, June 12 p 18
Fruehauf Must Divest Its Kelsey-Hayes Assets, Mar 27 p 18

VICTOR FUCHS
Search is On to Improve Productivity, Feb 13 p 21

FUEL CELLS
Refueling Fuel Cell Power Research, May 29 p 44

FUEL CONSUMPTION
Ford Ready to Revise its Fuel-Economy Guide, Apr 24 p 14

FUELS
It Costs GM $2 Billion to Save 1 MPG, Mar 13 p 17
Water Emulsions Won't Be a "Tiger" in Your Tank, May 15 p 43

R. W. FULLERTON
New Coke Quench Data Jolts Steel Mills, by G. J. McManus, Jan 30 p MP-5

ROBERT FUREY
Ask Not for Whom the Gavel Tolls, by Tom Dulaney, May 29 p 33

FURNACES
Japan Phases Out Last Open Hearths, Jan 30 p MP-1
Making Success Out of Risk in a Crisis Marketplace, by G. A. Weimer, Jan 9 p 16
Slot Forge Furnace Design Fuels Energy-Savings, June 19 p 63

OSWALD FURST GMBH
Double Your Output by High-Speed Broaching, by J. J. Obrzut, June 5 p 67

G

GSE, INC.
Electronics Helps Fastening Move from Art to Science, by R. R. Irving, June 26 p 32

TILFORD GAINES
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

R. J. GALLAGHER CO.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

ROBERT GALLAGHER, SR.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

GALVANIZING
Coil Coaters Seek a 'Perfect' Galvanized Steel, by J. J. Obrzut, May 1 p 37

D. C. GARFIELD
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

DAVID GARFIELD
When DISC Dies, So Will the Good That it's Done, by K. W. Bennett, Feb 6 p 37

GASIFICATION
Coal Gasification: Steel's Toughest Environment Yet, by R. R. Irving, Mar 6 p 35

GASOLINE
Few Energy-Saving Miles in Gas Tax, Ford Exec Says, Apr 17 p 12

GATE CITY STEEL CO.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

GEARS
Dual Lube System Cuts Machine Downtime, Apr 17 p 59
Gear Shipments Stuck in Neutral in January, Mar 27 p 17
November Brings Mixed Bag to Gear Manufacturers, Feb 6 p 16
'78 May Be Another Year of the Gear, Mar 6 p 11

MICHAEL GEBBEN
Don't Worry About Production; Watch Maintenance Costs, by K. W. Bennett, Jan 30 p 23

GENERAL ACCOUNTING OFFICE
Chrysler Tank Subcontract Causes Concern, by E. W. Bowers, Apr 17 p 30

GENERAL AVIATION MANUFACTURERS ASSN.
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

GENERAL DYNAMICS CORP.
Advanced Materials Given Room to Fly in Aerospace, by B.H. LeCerf and A.M. Greene, June 19 p 53
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

GENERAL ELECTRIC CO.
Bethlehem Unveils Marvel in Steel Technology, by K. W. Bennett, June 19 p MP-15
Business Raises Voice Against Carter's Proposals, Mar 20 p 12
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18
It's Getting Harder to Get Power to the People, by G. J. McManus, Mar 6 p 26
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115
New GE Plastic Aimed at Metal's Computer Market, Mar 13 p 16
Refueling Fuel Cell Power Research, May 29 p 44
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

GENERAL IRON INDUSTRIES, INC.
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

GENERAL KINEMATICS, INC.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

GENERAL MOTORS CORP.
Auto Sales Spurt in Post-Blizzard Boost, Mar 6 p 10
Automakers Confident Despite Sales Chill, Feb 27 p 11
Automakers Hear Boos as Sales Slump Continues, Feb 6 p 15
Autos' Weight Loss is Machine Tools' Gain, Apr 3 p 9
Breakthrough Recharges Electric Car's Future, Mar 27 p 16
Chrysler Has Record Loss; GM a Strong First Quarter, May 8 p 15
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29
Consumers Re-Discover Their Emotions for Cars, Apr 3 p 13
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26
GM Aims to Reduce Car Weight, Yet Keep Car Space, Feb 27 p 12
GM Plans to Triple Diesel Engine Output, May 22 p 14
GM's PUMA Robot Tackles Assembly Line Chores, June 5 p 12
GM's Southern Hospitality is Absent, UAW Charges, June 12 p 14
Government Regs Cost GM $200 on Every Vehicle Sold, June 5 p 13
It Costs GM $2 Billion to Save 1 MPG, Mar 13 p 17
New Smaller Autos Make Big Use of SMC Plastic, Feb 27 p 13
Small Car Design Will Change Tooling Market, Feb 20 p 12
Speeding Automakers Fight to Hold the Road, Jan 23 p 11
U. S. Auto Sales Overcome Winter Breakdowns, Apr 10 p 18
U. S., Foreign Automakers Set Monthly Sales Record, June 19 p 14
"Warm Forming" Aluminum Extends Usage in Cars, Mar 20 p 42
What's Bringing Rotaries Back? by G. A. Weimer, May 8 p 31
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20

GENERAL MOTORS INSTITUTE
How the Auto Industry Selects Adhesives, Apr 10 p 106
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33

GENERAL NUMERIC CORP.
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

GENERAL SERVICES ADMINISTRATION
Corrosion is Our National Financial Disgrace, by J. J. Obrzut, Apr 3 p 41
Stockpile's Caretakers Plan to Go Shopping, Feb 6 p 14

GENIMAR CORP.
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51

GEORGETOWN STEEL CORP.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
Water Panels Keep Furnace Walls Cool, Jan 30 p MP-2

GERALD METALS CO.
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41

GERMAN DEMOCRATIC REPUBLIC
GDR Technology Lands in U. S. with Some Fanfare, May 29 p 45
Will Plasma Steelmaking Replace the Electric Furnace? Apr 24 p MP-29

HOWARD W. GEYER
Machine Tool Makers Like Near-Term Outlook, Apr 10 p 28

ROBERT GIAIMO
Without Bolts and Screws, U. S. Security is Threadbare, by E. W. Bowers, Feb 20 p 28

HENRY J. GIBBS
Plate Fabricators: Deep in the Heart of Houston, by R. R. Irving, May 8 p 59

B. J. GIBLIN
Autos' Weight Loss is Machine Tools' Gain, Apr 3 p 9

GIDDINGS & LEWIS, INC.
Autos' Weight Loss is Machine Tools' Gain Apr 3 p 9

GIDEP
See: Quality Control Technical Information

GIDEP OPERATIONS CENTER
Government-Industry System Waves the Flag on Defects, by R. R. Irving, Jan 16 p 54

W. W. GILBERT
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

GILLERMAN IRON & METAL CO.
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

I. AROOUX K. GILLESPIE
ECD Fights the Costly Burr, by D. A. VanCleave, Mar 13 p 59

LESLIE GILLETTE
Construction's Next Build-Up Will be Harder to See, by K. W. Bennett, May 29 p 28

GILMORE STEEL CO.
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Trigger Prices May be Steelmakers' Only Hope, Jan 23 p 12

WILLIAM GIMBEL
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

GLASS TEXTILES
Army Gets High on Fiberglass Blades, June 26 p 39

GLEASON WORKS
Metalworking Profits Have Surprising First Quarter, May 15 p 26

DANIEL GLEGHORN
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

JOHN GLENN
Hearings May be Held on Fastener Import Relief, Mar 13 p 15

WILLIAM GOERING
Playing the "What If" Game in Future Auto Design, by D. A. Van Cleave, Feb 13 p 49

ALAN GOLDBERG
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

A. F. GOLDING
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

KENNETH GOLDSTEIN
Job-Seekers Left Cold; Technical Demand Up, Mar 13 p 14

HENRY O. GOLIGHTLY
Metalworking's Merger Fever Hits New High, by P. J. Cathey, June 12 p 23

GOLIGHTLY & CO INTERNATIONAL
Metalworking's Merger Fever Hits New High, by P. J. Cathey, June 12 p 23

R. H. GOODENOW
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9

DOUGLAS GOODWIN
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

GOODYEAR TIRE & RUBBER CO.
'Elliptic' Tires OKd for Goodyear Production, June 12 p 16

ALLEN GORDON
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25

KOHEI GOSHI
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

H. R. GOSS
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

GOULD INC.
Cold Compaction Broadens Market for Titanium PM, by G. A. Weimer, May 8 p 70
Don't Short Change R & D Spending - It Pays Off, Feb 27 p 16
Electric Vehicles: Reality by Mid-1980's? June 26 p 39
Gould Inc. Gets Contract for Nickel-Zinc Battery, June 5 p 14

PIERRE GOUSSELAND
Nickle Producers Wish the Future Were Now, Mar 13 p 90

GOVERNMENT
"And After All We've Done for You", by Gene Beaudet, Apr 24 p 3
Business Raises Voice Against Carter's Proposals, Mar 20 p 12
Complying with Government Costs $65.4 Billion, May 1 p 14
Founders Cast Lines for Government Understanding, Mar 6 p 10
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18
Government-Industry System Waves the Flag on Defects, by R. R. Irving, Jan 16 p 54
Government Launches Critical Study of Non-Fuel Minerals, Jan 9 p 11
Government Puts Heat on for a Coal Settlement, Feb 27 p 11
How You Can Get Government Export Marketing Help, Jan 2 p 79
Is the 'Me' Generation to Blame? by Gene Beaudet, Apr 17 p 3
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65
Loan Guarantee Program for Steel Unveiled, Apr 3 p 9
'Shared Monopoly' Issue Survives, Despite Steel's Problems, Feb 6 p 39
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
Sometimes the Answers Aren't That Easy, by Gene Beaudet, May 29 p 3
This Comes as a Surprise? by Gene Beaudet, Mar 6 p 3
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
U. S. Won't Face Problems, Says Eaton's de Windt, May 8 p 15
White House Undercuts ITC Action on Pipe Imports, May 8 p 11
Who Repealed the First Amendment, Anyway? by Gene Beaudet, May 8 p 3

GOVERNMENT REGULATION
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39
Complying with Government Costs $65.4 Billion, May 1 p 14
Financial Men Tell What's Holding Economy Back, Feb 6 p 35
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18
Government Regs Cost GM $200 on Every Vehicles Sold, June 5 p 13
Government's Regulatory Game is Dirty Pool, May 15 p 35
Government Rules Sought on Technology Transfers, Jan 9 p 13
High Regulatory Costs Drags Copper Down, Mar 27 p 75
Industry Challenges New OSHA Rule on Benzene, Feb 20 p 12
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65
Metalproducers Must Answer to Government, Jan 30 p MP-1
Might Oaks from Little Acorns? Not this Way, by Gene Beaudet, Feb 13 p 3
OSHA's Carcinogen Rules too Expensive, Study Says, Apr 10 p 18
Regulations Hit Public, COWPS Director Concedes, Apr 24 p 13
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
So, Color Me Predictable, by Gene Beaudet, Jan 9 p 3
Supreme Court's Deciding if OSHA Can Barge Ahead, Jan 23 p 13

T. C. GRAHAM
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43

P. J. GRANDY
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

GRAPHIC PLOTTERS
NC-CAD/CIM Report, by J. B. Pond, June 5 p 45

GRAPHITE
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53
Ingot Stool Insert Popular with Japanese Steelmakers, Mar 27 p MP-3

FREDERICK E. GRAVES
Electronics Helps Fastening Move from Art to Science, by R. R. Irving, June 26 p 32

JAMES A. GRAY
Capital Spending Halved by High Inflation, May 29 p 13
Extend Life of Eximbank, Tool Builders Urge, Apr 3 p 13
How Can Metalworking Stop Liquidating Itself? June 12 p 21
Machine Tool Builders Wrap Up a Good Year, Feb 6 p 11
Technologies, Not Products, to Get Export Controls, by E. W. Bowers, June 19 p 47
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

STANLEY GREEN
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

ARNOLD GREENE
Consumer-Demand Change NDT Practice, Jan 30 p 32

ARNOLD GREENE TESTING LABORATORIES, INC.
Consumer-Demand Change NDT Practice, Jan 30 p 32

BARRY GREGORY
ECD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 59

WILLARD T. GRIMM
Economic Climate Nourishes Bumper Crop of Mergers, Jan 30 p 19

W. T. GRIMM & CO.
Economic Climate Nourishes Bumper Crop of Mergers, Jan 30 p 19
Less Metals Mergers in '77 May Have Been More, Feb 20 p 21
Don't Compare Merger Surge with that of the 1960's, May 1 p 21

GRINDING
Add a Conditioning Plant to Republic's List, May 22 p MP-6
Billet Grinding Moves into High Speed Operation, by C. T. Post, Apr 24 p MP-25
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

GROUTS
Non-Shrink Grouts Save Maintenance, Cut Downtime, Feb 27 p MP-24

GROVE MFG. CO.
Quality Engineering Can be a Real Profit Center, by R. R. Irving, Apr 17 p 53

GRUMMAN AEROSPACE CORP.
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

GUIDED MISSILES
Missile Chill Factor Warms Hughes Engineers, June 26 p 39

CHARLES GUINARD
Across the Atlantic, Aluminum Stays Afloat, by R. J. Regan, Apr 24 p 27

GULF & WESTERN INDUSTRIES, INC.
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27

GULF & WESTERN NATURAL RESOURCES GROUP
Don't Let Zinc Prices Fall to the Bottom, ITC Told, Mar 20 p 61
Import Redress Will Take Time for Zinc Producers, Jan 16 p 69

GUNNING UNITS
"Lowering the Boom" on Coke Oven Emissions, Mar 27 p MP-35

PAUL GUSTUS
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

P. F. GUY
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20

GUYANA
Carribean Bauxite Loses Ground in U. S. Markets, by R. J. Regan, Mar 6 p 30

H

JOHN HAARLOW
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

JAMES HAAS
Service Centers Expect to Ship 10 Pct More in '78, May 22 p 13
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

PAUL HAAS
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

JOHN T. HACKETT
Driving Market Forces Keep Diesels Going, by G. A. Weimer, June 26 p 21
Managers Seek Best Way to Adjust for Inflation, by P. J. Cathey, Feb 6 p 47

HAGUE INTERNATIONAL, INC.
Slot Forge Furnace Design Fuels Energy-Savings, June 19 p 63

HAHN & CLAY CO.
Plate Fabricators: Deep in the Heart of Houston, by R. R. Irving, May 8 p 59

ROBERT HAHN
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

HAITI
Carribean Bauxite Loses Ground in U. S. Markets, by R. J. Regan, Mar 6 p 30

ROBERT HALF PERSONNEL AGENCIES, INC.
Financial Execs Worry More, Get Paid More, Feb 20 p 21

HAMMERMILL, INC.
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

PAT HANAFEE
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20

R. B. HANCOCK
Tubing Capacity Swells as Technology Expands, June 12 p 16

HANDY & HARMAN
Silver Flies High Because Dollars Sink, Mar 20 p 62

PATRICK HANRATTY
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

CHARLES HANSEN
When DISC Dies, So Will the Good That it's Done, by K. W. Bennett, Feb 6 p 37

WILLIAM HARDING
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33

HARDINGE BROS., INC.
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

EDWARD HARDMAN
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

HARDWARE & METAL SPECIALISTS CO.
Fastener Makers Defy Administration on Imports, by G. A. Weimer, June 5 p 31

WILLIAM C. HART
Life in the State Regulatory Jungle and How It Has Business In a Bind, by G. A. Weimer, Apr 10 p 65

HARTFORD STEAM BOILER INSPECTION AND INSURANCE CO.
High Technology Erupts on the NDT Scene, by R. R. Irving, May 15 p 39

JOSEPH HARTMAN
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

FRED G. HARVEY
Bethlehem Trap Catches Coal Coking Ammonia, Mar 27 p MP-6

C. L. HASLAM
Finally - Official Word on Product Liability, Apr 17 p 11

F. K. HATCH
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

ORRIN HATCH
Labor Reform Supporters Expect Measure to Pass, June 19 p 11
What's Being Done About Off-Limits Minerals Lands? by F. W. Bowers, Mar 13 p 31

C. F. HAUCK
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

JACK HAUCK
Tubing Capacity Swells as Technology Expands, June 12 p 16

DAVID HAWKINS
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39

HAYES-ALBION CORP.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

GEORGE T. HAYMAKER
Aluminum Smelter Glut Puts Pressure on Price, Feb 20 p 65

FRANK A. HAYN
Why British Leyland is Sold on Electronic Bolt Tightening, by R. R. Irving, June 12 p 44

HEAT EXCHANGERS
New Family Adopts E-Brite Stainless, by D. A. Van Cleave, Mar 27 p 47

HEAT PUMPS
Chemical Heat Pump is Another Energy-Saver, June 12 p 46

HEAT TREATING
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9
Vibratory Stress Relief: Black Magic or Cure-All? by R. R. Irving, Apr 17 p 56

HECKETT ENGINEERING CO.
Slag, Fines and Fume - Steel's New Raw Material, by G. J. McManus and G. A. Weimer, May 22 p MP-15

HECLA MINING CO.
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41

RUSSELL A. HEDDEN
Machine Tool Makers Like Near-Term Outlook, Apr 10 p 28
Metalworking Profits Have Surprising First Quarter, May 15 p 26
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

LAURI HEIKENEN
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

CHARLES HEINEN
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20

RONALD HEITZMANN
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

HELICOPTERS
Army Gets High on Fiberglass Blades, June 26 p 39
A High-Flying Pollution Control System, Mar 27 p MP-40

WALTER HELLER
Why Not Give Inflation a Chance? by Gene Beaudet, June 5 p 3

CHARLES J. HELLIER
High Technology Erupts on the NDT Scene, by R. R. Irving, May 15 p 39

KLAUS HEMSATH
Making Success Out of Risk in a Crisis Marketplace, by G. A. Weimer, Jan 9 p 16

JEROME O. HENDRICKSON
Valve Producers Cite Pressure from Imports, Feb 13 p 12

HERCULES, INC.
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29
New Family Adopts E-Brite Stainless, by D. A. Van Cleave, Mar 27 p 47
Pultrusion: Composites' Road to Mass Production, by C. T. Post, Jan 30 p 27

LEE R. HERDON
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

HERMAN CORP.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

D. M. HERNACK
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29

LEE R. HERNDON, JR.
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

ROBERT O. HESTER
New Smaller Autos Make Big Use of SMC Plastic, Feb 27 p 13

W. FLOYD HESTER
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44

HEWLETT-PACKARD CORP.
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33

GILBERT HEYBLOM
Don't Worry About Production; Watch Maintenance Costs, by K. W. Bennett, Jan 30 p 23

HIGH TEMPERATURE
Making Success Out of Risk in a Crisis Marketplace, by G. A. Weimer, Jan 9 p 16

O. K. HILL
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

D. J. HINES
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

HITACHI SEIKI CO., LTD.
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

HOBBING
Dual Lube System Cuts Machine Downtime, Apr 17 p 59
GDR Technology Lands in U. S. with Some Fanfare, May 29 p 45

WILLIAM HOBBS
Smart Shoppers Can Find Bargain-Priced Aluminum, June 26 p 54

F. R. HOCH
Aluminum Shows Auto Market Proof of Weldability, May 1 p 46

WILLIAM T. HOGAN
Trigger Price Mechanism Gets Some Close Analysis, Feb 13 p 11

HOKKAIDO UNIVERSITY
Water Emulsions Won't Be a "Tiger" in Your Tank, May 15 p 43

JOHN L. HOLCOMB
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

HARRY HOLIDAY
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32

HOLLEY, KENNEY, SCHOTT, INC.
Slag, Fines and Fume - Steel's New Raw Material, by G. J. McManus and G. A. Weimer, May 22 p MP-15

W. R. HOLMAN
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

HOLOGRAPHY
High Technology Erupts on the NDT Scene, by R. R. Irving, May 15 p 39

GEORGE HOMMEL
Making Success Out of Risk in a Crisis Marketplace, by G. A. Weimer, Jan 9 p 16

HONEYWELL INC.
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

ROBERT C. HONKE
Leisure Vehicles Sales are Out of the Woods, May 1 p 11

CRAIG HOOD
Why British Leyland is Sold on Electronic Bolt Tightening, by R. R. Irving, June 12 p 44

ROBERT D. HORMATS
World Trade Enters A Year of Crisis, Jan 30 p 15

HOT FORMING
Automatic Hot-Forming Takes a Quantum Jump, by J. B. Pond, Mar 20 p 43

HOT ISOSTATIC PRESSING
Ceramic Containers Store Nuclear Waste, Jan 9 p 32

HOT PRESSING
Scrap Aluminum Pressed into Metalworking Service, June 26 p 40

HOUDAILLE INDUSTRIES, INC.
Dual Lube System Cuts Machine Downtime, Apr 17 p 59

CHARLES H. HOUSE
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33

HOUSE OF STAINLESS, INC.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

C. D. HOWELL
Playing the "What If" Game in Future Auto Design, by D. A. Van Cleave, Feb 13 p 49

JOHN B. HOWKINS
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41
Copper's Latest Plea is a Loaded Question, by R. J. Regan, Mar 25 p 29
Copper's Price Stands on Shaky Ground, May 15 p 57
Copper Shipments Stay with Output-Unfortunately, May 8 p 88
Life with Copper Takes on New Meaning, by R. J. Regan, Feb 6 p 41

HOWMET ALUMINUM CORP.
Aluminum Makers Up Output; Alcoa Ups Can Sheet Price, Jan 23 p 41
Aluminum Producers Scramble to Add Capacity, Mar 13 p 89
Aluminum Producers Waste No Time in '78, Jan 30 p 41

H & S MFG. CO., INC.
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

A. C. HUBERT
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

HUDSON BAY MINING & SMELTING CO.
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41

HUDSON PRODUCTS CORP.
Tubing Design Proves Very Cool Blend, May 1 p 41

DONALD HUG
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29

HUGHES AIRCRAFT CO.
Missile Chill Factor Warms Hughes Engineers, June 26 p 39
Production Lines Impacted by Laser Device Manufacture, June 12 p 46

D. B. HUGHES
Structural Fabricators Fear Trigger Ricochet, Feb 6 p 16

WILLIAM R. HULSIZER
Coal Gasification: Steel's Toughest Environment Yet, by R. R. Irving, Mar 6 p 35

CLIFFORD R. HUMPHRYS
Iceberg Transport Could Open New Industry, by D. A. Van Cleave, Feb 27 p 31

G. C. HURLBERT
It's Getting Harder to Get Power to the People, by G. J. McManus, Mar 6 p 26

HURON STEEL CO.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

P. J. HUTTA
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25

HYDRAMATIC DIV.
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

HYDRAULIC PRESSES
Making a Big Impression on Stamping Technology, May 15 p 43

HYDROELECTRIC POWER
Energy Makers May Turn More to Water Power, Mar 13 p 17

I

LEE A. IACOCCA
Automakers Rev Up to Industry's Challenges, May 8 p 15
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65
U. S. Auto Sales Overcome Winter Breakdowns, Apr 10 p 18
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

ICEBERG TRANSPORT INTERNATIONAL
Iceberg Transport Could Open New Industry, by D. A. Van Cleave, Feb 27 p 31

ICEBERGS
Iceberg TransportCould Open New Industry, by D. A. Van Cleave, Feb 27 p 31

YOSHIZO IKEDA
Import Welcome Extended by Japan to U. S., Mar 27 p 17

ILLINOIS INSTITUTE OF TECHNOLOGY RESEARCH INSTITUTE
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18

IMPORTS
AFL-CIO Comes Out Strong for Protectionism, Mar 6 p 11
Aluminum Users Stay Happy as Clams, Mar 6 p 61
As Sound As . . . You Bet! by Gene Beaudet, Jan 23 p 3
Carter's Fastener Decision May Not Hold Up, Feb 27 p 14
Challenge on Fasteners Has a Long Road Ahead, Mar 27 p 15
Congressional Support Asked for Bearing Makers, Mar 6 p 10
Copper Producers Reach Verdict - Quota, Not Tariff, Mar 6 p 65
Copper's Latest Plea is a Loaded Question, by R. J. Regan, Mar 25 p 29
Fastener Makers Won't Abandon Import Fight, May 8 p 11
Fastener Makers Defy Administration on Imports, by G. A. Weimer, June 5 p 31
Fasteners Delegation Takes Case to D. C., Feb 6 p 15

Figures Do Lie, Japan Sources Say, Apr 24 p 63
For Copper, a Hectic Seven Days in May, June 5 p 92
Free Trade is a Myth in the World Steel Market, Apr 17 p 32
From Japan Comes Hints for a Steel Quota Scheme, Mar 13 p 11
Hearings May be Held on Fastener Import Relief, Mar 13 p 15
Import Quota on Specialty Steel Will Stay, Jan 30 p 14
Import Oil Flood Drowns U. S. Trade Balance, Feb 13 p 12
Imports Begin to Clamp Aluminum's Style, June 5 p 92
Imports Start Cropping Up in Farm Equipment Market, May 1 p 10
Japan Ponders 10-Point Trade Pact with U. S., Jan 23 p 14
Japan Wins Another Battle, But Not the War, Mar 22 p 107
Japanese Don't Want to War over Trigger Prices, Mar 6 p 12
Japanese Imports Hurt U. S. Plate Producers, Apr 24 p 16
Oil Imports Will Level Off, Not Decline, this Year, Jan 16 p 14
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
Steel Summary: Not All Trigger Prices Hit Target, Feb 20 p 63
Steel Summary: The Numbers Game, June 12 p 57
Steel Summary: March is Coming in Like a Lamb, Jan 23 p 39
Steel Summary: Trigger Prices Fire Two Blanks, Jan 16 p 69
Steel Summary: Triggers Come Under Fire, May 8 p 87
Steel Summary: Users are Buying a World of Steel, Apr 17 p 79
Structural Fabricators Fear Trigger Ricochet, Feb 6 p 16
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Trigger Prices May be Steelmakers' Only Hope, Jan 23 p 12
Trigger Prices Score Bull's-Eye, Importers Say, Mar 6 p 61
Valve Industry Wants Tougher Dumping Laws, May 1 p 12
Valve Producers Cite Pressure from Imports, Feb 13 p 12
West Coast Imports Outpace Last Year, June 19 p 87
White House Undercuts ITC Action on Pipe Imports, May 8 p 11
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
Will New Trigger Prices Hike Steel Imports? May 22 p 11
Without Bolts and Screws, U. S. Security is Threadbare, by E. W. Bowers, Feb 20 p 28
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29
Zinc Finds a Hard Way to Prove Its Point, Apr 3 p 63
Zinc Imports Blamed for St. Joe Layoffs, Mar 13 p 91

INCO, LTD.
Competition is Killing Nickel, by R. J. Regan, May 15 p 29
Global Nickel Takes Its Knocks: Production Dips, Jan 23 p 39
Inco Begins to See Some Real Growth, May 29 p 49
Inco Production Gets Stay of Execution, Apr 24 p 64
Inco's Selling More Nickel but Making Less, May 1 p 53
New Year Promises More of the Same for Inco, Jan 9 p 39
Nickel Accord Raises Law of the Sea Hopes, May 29 p 50
Nickel Prices Take One Step Back, June 12 p 59
Nickel Producers Wish the Future Were Now, Mar 13 p 90
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27

INDEPENDENT WIRE PRODUCERS ASSN.
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51

INDUSTRIAL FASTENERS INSTITUTE
Fastener Makers Defy Administration on Imports, by G. A. Weimer, June 5 p 31

INDUSTRIAL HEATING EQUIPMENT ASSN.
Beall Reelected President of Heating Equipment Group, May 1 p 12

INDUSTRIAL PLANTS CORP.
Alan Wood Staves Off Liquidation for Now, June 19 p 93
Ask Not for Whom the Gavel Tolls, by Tom Dulaney, May 29 p 33

INDUSTRIAL RELATIONS
Ball Corp. Makes Certain Its Workers Understand, by C. T. Post, June 12 p 28
Communications and Costs Can Alter the Bottom Line, by K. W. Bennett, June 26 p 28
McKee Builds Its Personnel the Way It Builds Industry, by G. A. Weimer, Apr 3 p 32
Settlement Won't Burn Off Coal's Basic Problems, by G. A. Weimer, Feb 27 p 21

INDUSTRY
Bearing Down in the Right Place, by Gene Beaudet, Mar 20 p 3
Business Raises Voice Against Carter's Proposals, Mar 20 p 12
Government-Industry System Waves the Flag on Defects, by R. R. Irving, Jan 16 p 54
Mind Your Own Business, Please, by Gene Beaudet, Feb 20 p 3
Not by Love Alone, by Gene Beaudet, Mar 27 p 3
Sometimes the Answers Aren't That Easy, by Gene Beaudet, May 29 p 3

INFORMATION DISPLAYS, INC.
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

JAMES INGERSOLL
DISC Death Would Halve Export Incentives, Feb 13 p 13

INGERSOLL-RAND CO.
Palletizing: Hot Trend in Automatic Parts Handling, by J. B. Pond and B. H. LeCert, Apr 24 p 43
Rotary Engine Proves Superior, Reliable Driver, June 19 p 63
When DISC Dies, So Will the Good That it's Done, by K. W. Bennett, Feb 6 p 37
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

INGOTS
Ingot Stool Insert Popular with Japanese Steelmakers, Mar 27 p MP-3

INLAND STEEL CO.
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25
Clean Water and Air Cost an Arm and a Leg, Mar 27 p MP-3
Free Trade is a Myth in the World Steel Market, Apr 17 p 32
Inland Likes What it Sees Ahead, June 12 p 58
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58
Optical Sensors Impact Coil Handling System, Mar 27 p MP-42
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Steel Summary: Cold, Strike Squeeze Supply, Feb 13 p 63
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Trigger Price Mechanism Gets Some Close Analysis, Feb 13 p 11
What Makes Up an Award Winning Annual Report, Feb 27 p 16

INSERTS
Ingot Stool Insert Popular with Japanese Steelmakers, Mar 27 p MP-3

INSPIRATION CONSOLIDATED COPPER CORP.
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41
Copper Price Returns to Its Roots, Mar 13 p 89
Copper Shipments Stay with Output-Unfortunately, May 8 p 88
Copper's Latest Plea is a Loaded Question, by R. J. Regan, Mar 20 p 29
Copper's Price Stands on Shaky Ground, May 15 p 57
For Copper, a Hectic Seven Days in May, June 5 p 92
For Want of 2.64 Cents, a Profit Was Lost, Feb 27 p 41
Life with Copper Takes On New Meaning, by R. J. Regan, Feb 6 p 41
The Sky *Is* Falling on Copper Producers, by E. W. Bowers, Mar 27 p 39

INSTITUTE OF GAS TECHNOLOGY
Oil Imports Will Level Off, Not Decline, this Year, Jan 16 p 14

INSTITUTE OF SCRAP IRON AND STEEL
Scrap Industry Puzzled by Customers' Attitudes, Jan 30 p 41

INSURANCE
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99
What Product Liability is Doing to Larger Companies, by R. R. Irving, Mar 20 p 39

INTAROTA INC.
EB Curing Foils High Costs of Material Coating, Mar 13 p 63

INTEL CORP.
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33

INTERACTIVE GRAPHICS
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37

INTERFINANZ
Metalworking's Merger Fever Hits New High, by P. J. Cathey, June 12 p 23
Merger Activity is Up on Worldwide Basis, Mar 20 p 22

INTERLAKE CORP.
Steelmakers Stretch to Overcome Coal Strike, Mar 20 p 9

INTERNATIONAL BUSINESS MACHINES CORP.
Computer Business Surge is Programmed by IBM, June 12 p 17
Entry-Level Computers Attract Manufacturing, by A. M. Greene, May 1 p 42

INTERNATIONAL CENTRE FOR SETTLEMENT OF INVESTMENT DISPUTES
Caribbean Bauxite Loses Ground in U. S. Markets, by R. J. Regan, Mar 6 p 30

INTERNATIONAL HARVESTER CO.
Driving Market Forces Keep Diesels Going, by G. A. Weimer, June 26 p 21
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

INTERNATIONAL IRON AND STEEL INSTITUTE
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
Japan's Steelmakers Still Dominate World Output, May 22 p MP-6
World's Steel Output Dipped Slightly in '77, Feb 27 p MP-3

INTERNATIONAL IRON ORE EXPORTERS ASSN.
Sir Charles Holds Court on Australia's Future, June 12 p 57

INTERNATIONAL LEAD ZINC RESEARCH ORGANIZATION, INC.
Coil Coaters Seek a 'Perfect' Galvanized Steel, by J. J. Obizzi, May 1 p 37

INTERNATIONAL MAGNESIUM ASSN.
New Capacity, Processes Boost Magnesium Output, June 19 p MP-6

INTERNATIONAL MINERALS & CHEMICAL CORP.
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

INTERNATIONAL NICKEL CO.
Coal Gasification: Steel's Toughest Environment Yet, by R. R. Irving, Mar 6 p 35

INTERNATIONAL PRIMARY ALUMINUM INSTITUTE
Across the Atlantic, Aluminum Stays Afloat, by R. J. Regan, Apr 24 p 27
World Aluminum Smelters Stay Red-Hot in Winter, Apr 10 p 159

INTERNATIONAL RELATIONS
Look for Conservative Stance in Trade Talks, Feb 27 p 13
The New Eximbankers Foreclose On Apathy, by E. W. Bowers, Feb 13 p 22
When DISC Dies, So Will the Good That it's Done, by K. W. Bennett, Feb 6 p 37
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29
World Trade Enters a Year of Crisis, Jan 30 p 15

INTERNATIONAL TARIFF COMMISSION
Import Redress Will Take Time for Zinc Producers, Jan 16 p 69

INTERNATIONAL TELEPHONE AND TELEGRAPH CO.
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

INTERNATIONAL TIN COUNCIL
Tin Stockpile Release Plan Raises Questions, Feb 27 p 13

INTERNATIONAL TRADE COMMISSION
The Big Gun Behind Trigger Prices, by Tom Dulaney, Mar 6 p 21
Carter's Fastener Decision May Not Hold Up, Feb 27 p 14
Copper Producers Reach Verdict - Quota, Not Tariff, Mar 6 p 65
Copper's Latest Plea is a Loaded Question, by R. J. Regan, Mar 25 p 29
Dinah's Price Balloon May Stay Airborne, Apr 10 p 155
Fasteners Delegation Takes Case to D. C., Feb 6 p 15
For Copper, a Hectic Seven Days in May, June 5 p 92
Has Copper's Horse Already Been Stolen? June 19 p 93
Hearings May be Held on Fastener Import Relief, Mar 13 p 15
Japanese Importers Hurt U. S. Plate Producers, Apr 24 p 16
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25
Snubbed by ITC, Zinc Turns Up Its Price, June 19 p 87
Stainless and Alloy Tool Shipments are Up, May 29 p 18
Union Carbide, Domestic Ferrochrome Producers Clash, Jan 30 p 39
Valve Industry Wants Tougher Dumping Laws, May 1 p 12
White House Undercuts ITC Action on Pipe Imports, May 8 p 11
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
Without Bolts and Screws, U. S. Security is Threadbare, by E. W. Bowers, Feb 20 p 28
Zinc's Bad News Could Also be Copper's, June 12 p 58
Zinc Finds a Hard Way to Prove Its Point, Apr 3 p 63
Zinc Life Signs are Hard to Find, Apr 24 p 64

INTERNATIONAL VENTURES MANAGEMENT, INC.
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25

INTERSTATE COMMERCE COMMISSION
ICC Approves Boost in Rail Freight Rates, June 19 p 14

INTERSTATE STEEL CO.
Service Centers Buying More Domestic Steel, Jan 30 p 13
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

INTSEL CORP.
Reynolds Orders Three "New Generation" Casters, Mar 20 p 62

INVENTORIES
Aluminum Stocks Begin to Swell, Feb 13 p 65
Bills Pile High for Stockpile Sales, Apr 3 p 13
Copper Stockpiling Has Carter Support-Udall, Mar 20 p 65

It's Time to Watch Inventory-Sales Ratio, May 8 p 29
Lead Stocks Begin to Climb as '77 Closes, Jan 16 p 71
Life with Copper Takes On New Meaning, by R. J. Regan, Feb 6 p 41
Room for Wares, Mar 6 p 29
Service Centers Display New-Found Strength, June 12 p 59
Service Centers Get Busy at Both Ends, May 8 p 91
Steel Service Centers Prepare for the Best, Apr 17 p 81
Stockpile's Caretakers Plan to Go Shopping, Feb 6 p 14
Tin Stockpile Release Plan Raises Questions, Feb 27 p 13
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

IRON ORE
Annual Statistical Review, Jan 2 p 93
Another Iron Ore Strike Comes to an End, June 26 p 56
Canada's Iron Ore Mines Crippled by Strikes, Apr 10 p 25
Iron Ore Movement is Under the Weather, Feb 27 p MP-7
Iron Ore Outlook Begins to Brighten, May 22 p MP-3
Ore Reduction Plants Could Be Put to Sea, May 22 p MP-3
Pickands Mather to Add Third Self-Unloading Ship, Apr 24 p MP-6
U. S. Metal Ore Output Fell 6 Pct in '77, Feb 6 p 15

IRON ORE CO. OF CANADA
Another Iron Ore Strike Comes to an End, June 26 p 56
Canada's Iron Ore Mines Crippled by Strikes, Apr 10 p 25

EUGENE ISENBERG
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51

ISHIKAWAJIMA-HARIMA HEAVY INDUSTRIES CO., INC.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15

ITT GRINNELL CORP.
What It Takes to Get an N Stamp, by R. R. Irving, Jan 23 p 28

ITT RESEARCH INSTITUTE
Scrap Aluminum Pressed into Metalworking Service, June 26 p 40

F. K. IVERSON
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
Steelmaker Fears Trigger Price Backfire, Feb 27 p MP-3

J

HENRY JACKSON
Miners Should Be Ruled in Public Interest, Feb 6 p 11

H. MYLES JACOB
Copper Price Returns to Its Roots, Mar 13 p 89
For Copper, a Hectic Seven Days in May, June 5 p 92
For Want of 2.64 Cents, a Profit Was Lost, Feb 27 p 41
Life with Copper Takes On New Meaning, by R. J. Regan, Feb 6 p 41
The Sky *Is* Falling on Copper Producers, by E. W. Bowers, Mar 27 p 39

RICHARD M. JACOBS
Government-Industry System Waves the Flag on Defects, by R. R. Irving, Jan 16 p 54

JACOBSEN MFG. CO.
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

FREDERICK G. JAICKS
Free Trade is a Myth in the World Steel Market, Apr 17 p 32
Inland Likes What it Sees Ahead, June 12 p 58
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Trigger Prices Mechanism Gets Some Close Analysis, Feb 13 p 11

JAMAICA
Carribean Bauxite Loses Ground in U. S. Markets, by R. J. Regan, Mar 6 p 30
Will Jamaica Make Advance Levies a Habit? Mar 27 p 73

JAMAICA BAUXITE INSTITUTE
Will Jamaica Make Advance Levies a Habit? Mar 27 p 73

GEORGE W. JAMES
Aircraft Makers Prepare for Smooth Takeoff, by B. H. LeCerf, June 12 p 32

ELIOT JANEWAY
Distress Signals, Mar 13 p 42

JANSEN GROUP
Vibratory Stress Relief: Black Magic or Cure-All? by R. R. Irving, Apr 17 p 56

JAPAN
The Big Gun Behind Trigger Prices, by Tom Dulaney, Mar 6 p 21
Chrysler Tank Subcontract Causes Concern, by E. W. Bowers Apr 17 p 30
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
Figures Do Lie, Japan Sources Say, Apr 24 p 63
From Japan Comes Hints for a Steel Quota Scheme, Mar 13 p 11
Import Welcome Extended by Japan to U. S., Mar 27 p 17
Japan Braces for Drop in Machine Tool Exports, Apr 3 p 12
Japan Phases Out Last Open Hearths, Jan 30 p MP-1
Japan Ponders 10-Point Trade Pact with U. S., Jan 23 p 14
Japan Wins Another Battle, But Not the War, May 22 p 107
Japanese Don't Want to War over Trigger Prices, Mar 6 p 12
Japanese Imports Hurt U. S. Plate Producers, Apr 24 p 16
Japan's Steelmakers Still Dominate World Output, May 22 p MP-6
Nissan Plans to Set Up Shop in the U. S., May 15 p 16
Panel to Monitor Trade Between U. S. and Japan, May 8 p 18
Revised Trigger Prices Give Cause for Study, May 15 p 19
Steel Cost Feud Goes into Overtime, May 15, p 60
Steel Summary: The View from Japan, Mar 20 p 61
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Trigger Prices May be Steelmakers' Only Hope, Jan 23 p 12
Two Japanese Steelmakers Claim World Records, Jan 30 p MP-2
U. S. Asked to Encourage Coal Exports to Japan, May 1 p 11
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24
Water Emulsions Won't Be a "Tiger" in Your Tank, May 15 p 43
White House Undercuts ITC Action on Pipe Imports, May 8 p 11
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
Will the Japanese Follow VW to the United States? May 1 p 13
Without Bolts and Screws, U. S. Security is Threadbare, by E. W. Bowers, Feb 20 p 28
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29

JAPAN MACHINE TOOL ASSN.
Japan Braces for Drop in Machine Tool Exports, Apr 3 p 12

JAPAN STEEL INFORMATION CENTER
Figures Do Lie, Japan Sources Say, Apr 24 p 63
Japan Phases Out Last Open Hearths, Jan 30 p MP-1
Steel Feud Goes into Overtime, May 15 p 60

JAPANESE PRODUCTIVITY CENTER
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

JACOB JAVITS
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

M. J. JEFFRIES
Refueling Fuel Cell Power Research, May 29 p 44

LYLE JENKINS
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25

R. F. JENNINGS
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

DONALD A. JENSEN
Ford Ready to Revise its Fuel-Economy Guide, Apr 24 p 14

JON L. JENSON
Metal Stamping Jobs Go Begging for People, May 22 p 13

GENE JOHANNESMEYER
Making the Most of a Computerized Energy System, Mar 13 p 63

JACK JOHNSON
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

ALLEN W. JOHNSTONE
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

JOHN W. JOHNSTONE, JR.
Union Carbide, Domestic Ferrochome Producers Clash, Jan 30 p 39

G. F. JOKLIK
What's Being Done About Off-Limits Minerals Lands? by E. W. Bowers, Mar 13 p 31

CHARLES JONES
What's Bringing Rotaries Back? by G. A. Weimer, May 8 p 31

E. BRADLEY JONES
Add a Conditioning Plant to Republic's List, May 22 p MP-6

JONES & LAUGHLIN STEEL CORP.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9
Magnesium Helps Steel Get the Sulfur Out, May 22 p MP-19
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43

REGINALD H. JONES
Business Raises Voice Against Carter's Proposals, Mar 20 p 12
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19

THOMAS JONES
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18

R. V. JOSLIN
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

JUDSON STEEL CORP.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

K

JOHN F. KAHLES
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

KAISER ALUMINUM & CHEMICAL CORP.
Aluminum and Steel Tied in Can Market, June 26 p 15
Aluminum Auto Market Race Speeds Up, Mar 13 p 91
Aluminum Makers Up Output; Alcoa Ups Can Sheet Price, Jan 23 p 41
Aluminum Producers Happy as Clams, Mar 6 p 61
Aluminum Producers Waste No Time in '78, Jan 30 p 41
Aluminum's Price Seeks Its Own Level, June 12 p 59
Carribean Bauxite Loses Ground in U. S. Markets, by R. J. Regan, Mar 6 p 30
Kaiser Reports Slight Shipment Loss, Apr 24 p 63
Smart Shoppers Can Find Bargain-Priced Aluminum, June 26 p 54
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
U. S., Canada Lead Aluminum Output Parade, May 8 p 87

KAISER STEEL CORP.
Anti-TPM Stance Drops Kaiser's Stock 3 Points, May 8 p 14
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Slag, Fines and Fume - Steel's New Raw Material, by G. J. McManus and G. A. Weimer, May 22 p MP-15
Steel Companies are Ready to Make their Move, Apr 17 p 79
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
Trigger Prices on Firing Line, by K. W. Bennett, May 29 p 25
West Coast Imports Outpace Last Year, June 19 p 87

HERBERT S. KALISH
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

KAMAN AEROSPACE CORP.
Metal Spinning for a Special Nose Job, Feb 27 p 33

WILLIAM S. KANAGA
Needed by the Board - An Audit Committee Apr 10 p 49

GEORGE F. KANE
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

SUZANNE KANZLEITER
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58

ERNEST W. KARLIN
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

LEONARD KASLE
Service Centers Expect to Ship 10 Pct. More in '78, May 22 p 13

KASLE STEEL CORP.
Service Centers Expect to Ship 10 Pct More in '78, May 22 p 13

JOHN P. KASPER
Communications and Costs Can Alter the Bottom Line, by K. W. Bennett, June 26 p 28
Metalworking Racks Up Record Sales and Profits, Feb 13 p 21

GEORGE KATONA
Equal Time, Mar 20 p 33

W. A. KAVENY
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

KIYOSHI KAWAHITO
Steel Cost Feud Goes into Overtime, May 15 p 60

KAWASAKI STEEL CORP.
New Coke Quench Data Jolts Steel Mills, by G. J. McManus, Jan 30 p MP-5
Two Japanese Steelmakers Claim World Records, Jan 30 p MP-2
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29

KAWECKI BERYLCO INDUSTRIES, INC.
Beryllium Nickel Strip Gets Better with Age, by B. H. LeCerf, May 22 p 84

Making the Most of a Computerized Energy System, Mar 13 p 63

KEARNEY & TRECKER CORP.
Autos' Weight Loss is Machine Tools' Gain, Apr 3 p 9
Machine Tool Makers Like Near-Term Outlook, Apr 10 p 26
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51
Metalworking Profits Have Surprising First Quarter, May 15 p 26
NC-CAD CIM Report, by J. B. Pond, Jan 16 p 35
NC-CAD CIM Report, by J. B. Pond, May 8 p 43

WILLIAM W. KEELER
Metalworking Racks Up Record Sales and Earnings, Feb 13 p 21

JOSEPH W. KEHLBECK
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

JOHN KEHOE
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

DONALD R. KEITH
Plate Fabricators: Deep in the Heart of Houston, by R. R. Irving, May 8 p 59

GARY KELLER
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

LARRY KELLER
Quality Engineering Can be a Real Profit Center, by R. R. Irving, Apr 17 p 53

DAVID KELLEY
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25

KELLOGG CORP.
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

KELSEY-HAYES CO.
1st Quarter Leads Convoy to a Good Truckin' Year, June 12 p 18
Fruehauf Must Divest Its Kelsey-Hayes Assets, Mar 27 p 18

KENNAMETAL, INC.
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51
Pathways Leading to a Healthy Bottom Line, Apr 3 p 24

KENNECOTT COPPER CORP.
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41
Copper Price Returns to Its Roots, Mar 13 p 89
Copper Producers Find a Lucky Penny, Apr 24 p 68
For Copper, a Hectic Seven Days in May, June 5 p 92
Has Copper's Horse Already Been Stolen? June 19 p 93
High Regulatory Costs Drags Copper Down,Mar 27 p 75
Kennecott Ahead in Voting, Without 'Mislaid' Proxies, June 5 p 15
Kennecott, Curtiss-Wright Drawing Their Battle Lines, Apr 17 p 15
Kennecott Fought Hard to Stay in Control, May 15 p 18
Kennecott Shareholders Day of Decision - May 2, May 1 p 9
Life with Copper Takes on New Meaning, by R. J. Regan, Feb 6 p 41
New System Tosses Copper Prices to the Wind, June 26 p 53
Results of Kennecott Proxy Battle Delayed, May 29 p 18
Steel Hit Bottom in '77: Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
This Time, Kennecott's on the Inside Looking Out, Apr 3 p 61
What's Being Done About Off-Limits Minerals Lands? by E. W. Bowers, Mar 13 p 31

CARL KENNEDY
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9

EDWARD KENNEDY
Tighter Anti-Trust Laws Sought by Kennedy, Mar 20 p 13

JAMES J. KERLEY
Financial Men Tell What's Holding Economy Back, Feb 6 p 35

HELMUT KESSNER
GDR Technology Lands in U. S. with Some Fanfare, May 29 p 45

KIDDER, PEABODY & CO.
Inflation Rate Could Rise to 8 Pct, Economist Warns, Jan 30 p 18

A. B. KIGHT
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

W. LESTER KILLEN
Some New Semantics for the Word 'Profit', Apr 17 p 23

DONG K. KIM
Coil Coaters Seek a 'Perfect' Galvanized Steel, by J. J. Obrzut, May 1 p 37

ANTHONY KING
North Sea Oil Will Turn British Economy Around, Jan 30 p 18

JEROME W. KING
NC-CAD CIM Report, by J. B. Pond, Feb 13 p 33

ROBERT KING
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

KING-SEELEY THERMOS CO.
EB Curing Foils High Costs of Material Coating, Mar 13 p 63

KIRK & BLUM MFG. CO.
A High-Flying Pollution Control System, Mar 27 p MP-40

LAWRENCE R. KLEIN
After a Wild and Crazy Quarter, a 2-Year Hangover, June 26 p 12
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

GARY KNIGHT
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25

W. H. KNOFFL
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59
Just Where Do Trigger Prices Misfire? Feb 6 p 11
Trigger Price Mechanism Gets Some Close Analysis, Feb 13 p 11

KOBE STEEL, LTD.
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29

TATSURO KOBOYASHI
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29

KOEHRING CO.
Metalworking Racks Up Record Sales and Profits, Feb 13 p 21

TOYO KOGYO LTD.
What's Bringing Rotaries Back? by G. A. Weimer, May 8 p 31

JOHN KONKAL
Palletizing . . . Hot Trend in Automatic Parts Handling, by J. B. Pond and B. H. LeCerf, Apr 24 p 43

KOPPERS CO., INC.
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15
Keep Cash Flowing through Capital Spending, May 1 p 21
Metals Merger Activity Continues to Swirl, May 1 p 10
New Coke Quench Data Jolts Steel Mills, by G. J. McManus, Jan 30 p MP-5

KOREA
Koreans Buy Most Scrap from U. S., Japan Second, Jan 9 p 39

KORF GROUP COMPANIES
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

KORF INDUSTRIES, INC.
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

HERMAN H. KREMER
For Copper, a Hectic Seven Days in May, June 5 p 92

JUANITA KREPS
Economy Should Keep Scoring in '78 - Kreps, Jan 23 p 12
Loan Guarantee Program for Steel Unveiled, Apr 3 p 9
Surplus Predicted in U. S.-China Trade, June 26 p 11
This Comes as a Surprise? by Gene Beaudet, Mar 6 p 3

SIDNEY KRISER
Ask Not for Whom the Gavel Tolls, by Tom Dulaney, May 29 p 33
Alan Wood Staves Off Liquidation for Now, June 19 p 93

G. R. KROIS
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

J. F. KROKER
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

W. H. KROME GEORGE
Alcoa's Profits Up, Despite Dip in Shipments Tonnage, May 1 p 55
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
What's New for Aluminum in '78, by R. J. Regan, Jan 16 p 22

KENNETH F. KRYSIAK
New Family Adopts E-Brite Stainless, by D. A. Van Cleave, Mar 27 p 47

JOSEPH KUHN
Beryllium Nickel Strip Gets Better with Age, by B. H. LeCerf, May 22 p 84

GEORGE H. KUPER
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

CHARLES KURALT
So, Color Me Predictable, by Gene Beaudet, Jan 9 p 3

P. F. KUSY
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44

HISAO KUZUOKA
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29

KYOEI STEEL, LTD.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

L

LTV CORP.
Steelmakers Jobs' Hinge on Lykes-LTV Merger, May 8 p 14

LABOR
AFL-CIO Comes Out Strong for Protectionism, Mar 6 p 11
Another Iron Ore Strike Comes to an End, June 26 p 56
Canada's Iron Ore Mines Crippled by Strikes, Apr 10 p 25
Coal Miners Went on Strike and Life Went On as Usual, Apr 3 p 12
Coal Strike Inches Its Way Toward a Settlement, Jan 30 p 13
Coal Supplies Dwindle as UMW Negotiations Dawdle, Feb 20 p 11
Costs, Prices Run Fast, But Productivity Walks, by J. D. Baxter, Apr 3 p 35
Don't Worry About Production; Watch Maintenance Costs, by K. W. Bennett, Jan 30 p 23
Factories are Rocked by Labor Cost Explosion, by J. J. Obrzut, June 5 p 34
Federal Mediators Join Bituminous Coal Talks, Jan 23 p 13
GM's Southern Hospitality is Absent, UAW Charges, June 12 p 14
Government Puts Heat on for a Coal Settlement, Feb 27 p 11
Hard Act to Follow, Feb 20 p 34
Labor Does the Job, Jan 23 p 25
Labor Lacks Political Clout, Says Larry, Mar 20 p 15
Labor Leaders, Managers Break Bread Together, June 12 p 14
Labor Reform Bill Moving before Congress-Slowly, May 29 p 13
Labor Reform Supporters Expect Measure to Pass, June 19 p 11
Long Strike Weakens UAW Unity, Miller's Strength, Mar 20 p 12
Meany Stalls Carter's Drive Against Inflation, May 22 p 11
Opposition to Labor Reform Bill Mounts, Jan 16 p 12
Settlement Won't Burn Off Coal's Basic Problems, by G. A. Weimer, Feb 27 p 21
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
Steel and Copper Workers Eligible for Job Assistance, Apr 3 p 15
Strike-Lost Time, Wage Settlement on the Rise, May 8 p 19
Taft-Hartley Just Adds Fuel to Miners' Fire, Mar 13 p 15
Tentative Coal Accord to Get Close Look, Mar 6 p 9
VW Went Peacefully into UAW's Fold, June 26 p 14
Warning: This Legislation May Be Dangerous to Business, Jan 9 p 19
When Coal Strike Ends, Its Costs Will Just Begin, Mar 27 p 11
Why Mr. Meany Was Half Right, by Gene Beaudet, May 22 p 3
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
Will 'Miners Got 39' Be Labor's New Hit Song? Apr 10 p 17
Will Social Workers Become a Contract Item? May 29 p 14

LACLEDE STEEL CO.
Computer Prophecies Keep Laclede on Track, Apr 24 p MP-20
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25

DANIEL L. LAMARCHE
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19

F. JONES LAMB CO.
Palletizing . . . Hot Trend in Automatic Parts Handling, by J. B. Pond, and B. H. LeCerf, Apr 24 p 43

R. T. LAMKIN, JR.
Dual Lube System Cuts Machine Downtime, Apr 17 p 59

LAND MANAGEMENT
What's Being Done About Off-Limits Minerals Lands? by E. W. Bowers, Mar 13 p 31

J. F. LANDEGEHEN
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

RONALD W. LANDGRAFF
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29

BERNARD LANDRY
Separate Quebec a Fact, Says Cabinet Minister, May 8 p 18

MICHAEL LANE
Computer Prophecies Keep Laclede on Track, Apr 24 p MP-20

FREDERICK G. LANGENBERG
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Steelmakers are Bullish, But is '78 a China Shop? by G. J. McManus, June 5 p 40
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

AUBREY G. LANGTON & CO., INC.
Credit Demand May Surge in the Second Half, Mar 6 p 19

RICHARD P. LARM
Zinc Finds a Hard Way to Prove Its Point, Apr 3 p 63

R. HEATH LARRY
Labor Lacks Political Clout, Says Larry, Mar 20 p 15
Opposition to Labor Reform Bill Mounts, Jan 16 p 12

LARRY CARS
They Designed a Vehicle to Curb Coke Emissions, by G. A. Weimer, Mar 27 p MP-22

S. WILLIAM LARSON
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

LASALLE PARTNERS, INC.
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

LASERS
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26
Production Lines Impacted by Laser Device Manufacture, June 12 p 46
Two Lasers are Better than One, Jan 30 p 29

D. J. LAUER
NC-CAD/CIM Report by J. B. Pond, Mar 13 p 45

ARTHUR S. LAURENSON
What It Takes to Get an N Stamp, by R.R. Irving, Jan 23 p 28

LAW AND LEGAL
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99
Bell Wants More Data on Dykes-I IV Plans, June 26 p 13
Court Reviews Coal Leasing Plan, Mar 13 p 16
Finally - Official Word on Product Liability, Apr 17 p 11
Is there Really Progress on Law-of-the Sea? June 5 p 15
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65
The Metric Boom Has a Faulty Legal Fuze, May 22 p 77
Nickel Accord Raises Law of the Sea Hopes, May 29 p 50
OSHA Must Have Warrants, But Nothing Has Changed, June 5 p 11
Product Liability Plans Sprout on Capitol Hill, Apr 3 p 16
Product Liability 'Mess' Keeps Getting Messier, Mar 13 p 16
The Real Test Begins for Trigger Prices, by F. W. Bowers and Tom Dulaney, Apr 10 p 51
'Shared Monopoly' Issue Survives, Despite Steel's Problems, Feb 6 p 39
Supreme Court Limits Nuclear Plant Challenges, Apr 24 p 16
Supreme Court's Deciding if OSHA Can Barge Ahead, Jan 23 p 13
Tighter Anti-Trust Laws Sought by Kennedy, Mar 20 p 13
What Product Liability is Doing to Larger Companies, by R. R. Irving, Mar 20 p 39
Who Repealed the First Amendment, Anyway? by Gene Beaudet, May 8 p 3

LAWRENCE LIVERMORE LABORATORY
Scientific Curiosities Look for Jobs in Industry, Jan 9 p 32

LEAD
Are Lead Price Cuts Only the Beginning? May 22 p 107
Batteries Out of Season; Lead Shipments Go Bad, June 19 p 89
Has Lead Learned from Zinc's Mistakes? May 15 p 57
Lead Industry Will Ride Along with Battery Market, Feb 13 p 63
Lead Stocks Begin to Climb as '77 Closes, Jan 16 p 71
When Lead Price Will Drop is Anyone's Guess, Mar 27 p 78

LEAR SIEGLER, INC.
Metalworking Racks Up Record Sales and Profits, Feb 13 p 21

LEASING
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

DAVID LEAVITT
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25

LEBLOND CO.
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

H. P. LECKIE
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9

A. P. LECLAIR
Aluminum Auto Market Race Speeds Up, Mar 13 p 91

LECTROMELT CORP.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

L. COURTLAND LEE
What's Being Done About Off-Limits Minerals Lands? by E. W. Bowers, Mar 13 p 31

ALLAN H. LEECH
Automatic Hot-Forming Takes a Quantam Jump, by J. B. Pond, Mar 20 p 43

JACQUES LEFLON
Across the Atlantic, Aluminum Stays Afloat, by R. J. Regan, Apr 24 p 27

LEGISLATION
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25
Bills Pile High for Stockpile Sales, Apr 3 p 13
Business Raises Voices Against Carter's Proposals Mar 20 p 12
Capital Gains Tax Draws Supporters, June 26 p 11
Carter's Fastener Decision May Not Hold Up, Feb 27 p 14
Challenges on Fasteners Has a Long Road Ahead, Mar 27 p 15
Chrysler Tank Subcontract Causes Concern, by E. W. Bowers, Apr 17 p 30
Congressional Support Asked for Bearing Makers, Mar 6 p 10
Fastener Makers Defy Administration on Imports, by G. A. Weimer, June 5 p 31
Fastener Makers Won't Abandon Import Fight, May 8 p 11
Fasteners Delegation Take Case to D. C., Feb 6 p 15
A Goodbye Man Speaks Out, by Gene Beaudet, Feb 27 p 3
Hearings May be Held on Fastener Import Relief, Mar 13 p 15
Industry Wants Tighter Buy-American Rules, Apr 3 p 14
Labor Reform Bill Moving Before Congress-Slowly, May 29 p 13
Labor Reform Supporters Expect Measure to Pass, June 19 p 11
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65
Miners Should Be Ruled in Public Interest, Feb 6 p 11
Mining Interests Don't Like to Be Kept Waiting, June 19 p 89
Opposition to Labor Reform Bill Mounts, Jan 16 p 12
Panel to Monitor Trade Between U. S. and Japan, May 8 p 18
Product Liability Plans Sprout on Capitol Hill, Apr 3 p 16
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
Tax Deduction Could Ease Product Liability Problem, May 29 p 14
Tell Congressmen What You Want, Businessmen Urged, June 5 p 15
Tighter Anti-Trust Laws Sought by Kennedy, Mar 20 p 13
Ullman Hopes to Reduce Double Tax on Dividends, Feb 20 p 11
Warning: This Legislation May Be Dangerous to Business, Jan 9 p 19
What's Being Done About Off-Limits Minerals Lands? by E. W. Bowers, Mar 13 p 31
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
Without Bolts and Screws, U. S. Security is Threadbare, by E. W. Bowers, Feb 20 p 28

LEHIGH UNIVERSITY
Coil Coaters Seek a 'Perfect' Galvanized Steel, by J. J.Obrzut, May 1 p 37
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

HENRY LEIDHEISER, JR.
Coil Coaters Seek a 'Perfect' Galvanized Steel, by J. J. Obrzut, May 1 p 37

JASON R. LEMON
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

A. J. LENA
Is Specialty Steel Sending Signal? by G. J. McManus, May 22 p 59

WILL E. LEONARD
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

JOHN H. LESLIE
Why Signode is Committed to International Trade, June 26 p 19

LETTERS
An Exchange of Views from the readers

ARTHUR LEVITT, JR.
Metalworking's Merger Fever Hits New High, by P. J. Cathey, June 12 p 23

LEYBOLD-HERAEUS VACUUM SYSTEMS, INC.
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

CLAYTON LIDDELL
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

ROBERT E. LIEBENDORFER
Fastener Makers Defy Administration on Imports, by G. A. Weimer, June 5 p 31

CALVIN LIEBERMAN
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

MARION LIGHTFOOT
Spring Life Signs Point to Fall Farm Harvest, by K. W. Bennett, May 1 p 32

IN LIM
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44

RONALD LINDE
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18

LINDE DIV.
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

FABIAN LINDEN
Consumers are Worried, May 1 p 29
The Party's Over, June 26 p 31
Shopping Sprees Ahead? Feb 6 p 49

RICHARD LINDENBERGER
Aircraft Makers Prepare for Smooth Takeoff, by B. H. LeCerf, June 12 p 32

C. H. LINK
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

ARTHUR D. LITTLE, INC.
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44
Clean Won't Come Cheap for Copper, Study Says, Mar 20 p 62
Metalworking's Merger Fever Hits New High, by P. J. Cathey, June 12 p 23
Playing the "What If" Game in Future Auto Design, by D. A. Van Cleave, Feb 13 p 49
The Sky Is Falling on Copper Producers, by E. W. Bowers, Mar 27 p 39
Steel Summary: Bridging the Gap? June 5 p 92

DALE LITTLE
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

LITTON INDUSTRIES BUSINESS FURNISHINGS GROUP
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

W. J. LOCHMANN
Coal Gasification: Steel's Toughest Environment Yet, by R. R. Irving, Mar 6 p 35

LOCKFORMER CO.
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

LOCKHEED CORP.
Aircraft Makers Prepare for Smooth Takeoff, by B. H. LeCerf, June 12 p 32

LOCKHEED AIRCRAFT CORP.
Pan Am Picks L-1011s for Its Long Range Fleet, Apr 24 p 14
Turboprop Engines May Return to Airline Scene, Jan 16 p 13

LOCKHEED MISSILES AND SPACE CO.
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

LOCKHEED RESEARCH LABORATORIES
Coal Gasification: Steel's Toughest Environment Yet, by R. R. Irving, Mar 6 p 35

LOCKHEED MISSILES AND SPACE CO.
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

MARCEL LOEB & CO., INC.
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25

EDWARD LOEFFLER
Technologies, Not Products, to Get Export Controls, by E. W. Bowers, June 19 p 47

JOHN J. LOHRMAN
Fastener Lobbyists are Working Overtime, May 1 p 9

LONE STAR STEEL CO.
Computer Bundles Growth and Diversity Into Neater Package, Mar 27 p MP-45
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

G. B. LOONEY
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

LORD, BISSELL & BROOK
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

LOS ALAMOS SCIENTIFIC LABORATORY
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

ROBERT M. LOSEE
Quality Engineering Can Be a Real Profit Center, by R. R. Irving, Apr 17 p 53

H. M. LOVE
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43

S. R. LOWDEN
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

R. A. LUBKIN
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

LUBRICANTS
Dual Lube System Cuts Machine Downtime, Apr 17 p 59
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9

D. LUCH
Add Carbon Black to Plastic for Direct Plateability, by J. J. Obrzut, Jan 30 p 30

F. R. LUERSSEN
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

THOMAS LUKEN
Chrysler Tank Subcontract Causes Concern, by E. W. Bowers, Apr 17 p 30

LUKENS STEEL CO.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

LUMMUS CO.
Coal Gasification: Steel's Toughest Environment Yet, by R. R. Irving, Mar 6 p 35

WILLIAM LUNTZ
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

LURIA STEEL & TRADING CORP.
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

LUXEMBOURG
Luxembourg Has Openings for Foreign Manufacturers, Feb 27 p MP-3

LYKES CORP.
Bell Wants More Data on Lykes-LTV Plans, June 26 p 13
Steel Companies are Ready to Make their Move, Apr 17 p 79
Steelworkers' Jobs Hinge on Lykes-LTV Merger, May 8 p 14

J. F. LYNDRUP
Cold Compaction Broadens Market for Titanium PM, by G. A. Weimer, May 8 p 70

Mc

LLOYD MCBRIDE
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

NOEL MCBRIDE
Jobless Figures Hinder Battle Against Inflation, June 19 p 18

W. T. MCBRIDE
McKee Builds Its Personnel the Way It Builds Industry, by G. A. Weimer, Apr 3 p 32

ARCHIE R. MCCARDELL
Driving Market Forces Keep Diesels Going, by G. A. Weimer, June 26 p 21

THOMAS MCCLOGHRY
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

G. H. MCCLURE
Just Where Do Trigger Prices Misfire? Feb 6 p 11

JOSEPH MCCLUSKEY
Cold Compaction Broadens Market for Titanium PM, by G. A. Weimer, May 8 p 70

PAUL MCCRACKEN
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

F. J. MCDONALD
GM Aims to Reduce Car Weight, Yet Keep Car Space, Feb 27 p 12

R. E. MCDONALD
Let's Jack Up Spending for R & D -Fast! June 5 p 29

MCDONNELL AIRCRAFT CO.
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

MCDONNELL AUTOMATION CO.
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

MCDONNELL-DOUGLAS CORP.
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53
Aircraft Makers Prepare for Smooth Takeoff, by B. H. LeCerf, June 12 p 32
Hanging Platform for High Altitude Rescue Work, Jan 16 p 56
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37
McDonnell Beats Boeing for Air Force Contract, Jan 9 p 13

IAN MCDOUGALL
Global Nickel Takes Its Knocks; Production Dips, Jan 23 p 39

R. J. MCFARLANE
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

FRANCIS J. MCGEE
McKee Builds Its Personnel the Way It Builds Industry, by G. A. Weimer, Apr 3 p 32

JAMES N. MCGEEHAN
Labor Leaders, Mangers Break Bread Together, June 12 p 14

J. J. MCGOVERN
The Big Decisions Behind Major Equipment Breakdowns, by J. J. Obrzut, Jan 16 p 47

DEAN MCKEE
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

GORDON B. MACKENZIE
Automakers Confident Despite Sales Chill, Feb 27 p 11
U.S., Foreign Automakers Set Monthly Sales Record, June 19 p 14

ARTHUR G. MCKEE & CO.
Commercial Marketing of FMC's Formcoke Process, Feb 27 p MP-28
McKee Builds Its Personnel the Way It Builds Industry, by G. A. Weimer, Apr 3 p 32
Plant Construction Work May Boom in 1980's, May 29 p 17

THOMAS MCLEER
1986 Aluminum Capacity Won't Meet Demand - Battelle, Jan 30 p MP-1

ROBERT MCLELLAN
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

MCLOUTH STEEL CORP.
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

JOHN MCMANUS
Will Social Workers Become a Contract Item? May 29 p 14

J. F. MCNALLEN
Slag, Fines and Fume - Steel's New Raw Material, by G. J. McManus and G. A. Weimer, May 22 p MP-15

J. P. MCNALLY
Adhesives Poised to Steal More of Joining Market, by J. J. Obrzut, Apr 24 p 46

JACK MCPHAIL
Palletizing . . . Hot Trend in Automatic Parts Handling, by J. B. Pond and B. H. LeCerf, Apr 24 p 43

M

MPD TECHNOLOGY CORP.
Add Carbon Black to Plastic for Direct Plateability, by J. J. Obrzut, Jan 30 p 30

MACHINABILITY DATA CENTER
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

MACHINE TOOLS
Auto Retooling is Aided Machine Tool Orders, Jan 9 p 11
Automakers are Keeping Machine Tool Builders Busy, Mar 6 p 9
Auto's Weight Loss is Machine Tools' Gain, Apr 3 p 9
Boom Times are Here for Machine Tool Makers, June 5 p 12
Extend Life of Eximbank, Tool Builders Urge, Apr 3 p 13
Is Giddings & Lewis Returning to Its Roots? Jan 9 p 12
Japan Braces for Drop in Machine Tool Exports, Apr 3 p 12
Machine Tool Builders Wrap Up a Good Year, Feb 6 p 11
Machine Tool Makers Like Near-Term Outlook, Apr 10 p 28
Machine Tool Orders Up Sharply in First Quarter, May 1 p 9
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35
NC-CAD/CIM Report, by J. B. Pond, June 5 p 45
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43
Machine Tool Shipments Seen Up 10 Pct this Year, Jan 23 p 11
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51
Metalworking 1978 as Seen by 100 Analysts, by J. D. Baxter, Feb 20 p 25
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45
Machine Tools to China Could Spark U. S. Economy, Mar 27 p 16
Product Liability 'Mess' Keeps Getting Messier, Mar 13 p 16
Russia Needs to Import Machine Tools, Study Says, June 5 p 16
Small Metal Fabricators Can Get NC Software, Mar 27 p 50
Steady Gains and Shaky Confidence, Jan 2 p 17
Technologies, Not Products, to Get Export Controls, by E. W. Bowers, June 19 p 47
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

MACHINE SHOPS
Warning: This Legislation May Be Dangerous to Business, Jan 9 p 19

MACHINERY
Metalworking 1978 as Seen by 100 Analysts, by J. D. Baxter, Feb 20 p 25

MACHINERY AND ALLIED PRODUCTS INSTITUTE
Technologies, Not Products, to Get Export Controls, by E. W. Bowers, June 19 p 47

MACHINING
The Big Decisions Behind Major Equipment Breakdowns, by J. J. Obrzut, Jan 16 p 47
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

A. J. MACONE
Tin Stockpile Release Plan Raises Questions, Feb 27 p 13

MACOTECH CORP.
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

GENE C. MACRI
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20

MITCHELL MAGID
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

MAGNESIUM
Magnesium Has the Price Other Metal Products Envy, by R. J. Regan, Mar 27 p 35
Magnesium Helps Steel Get the Sulfur Out, May 22 p MP-19
New Capacity, Processes Boost Magnesium Output, June 19 p MP-6

W. H. MAGRUDER
Union Carbide, Domestic Ferrochrome Producers Clash, Jan 30 p 39

DONALD MAHLER
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

CORNELL C. MAIER
Kaiser Reports Slight Shipment Loss, Apr 24 p 63
Smart Shoppers Can Find Bargain-Priced Aluminum, June 26 p 54
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
U. S., Canada Lead Aluminum Output Parade, May 8 p 87

MAINTENANCE ENGINEERING
The Big Decisions Behind Major Equipment Breakdowns, by J. J. Obrzut, Jan 16 p 47
Don't Worry About Production; Watch Maintenance Costs, by K. W. Bennett, Jan 30 p 23

L. E. MALIN
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15

STANLEY E. MALLEN
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20

ROBERT MALOTT
DISC Death Would Halve Export Incentives, Feb 13 p 13
Incentive Lack Threatens U. S. High-Technology Lead, Mar 20 p 15

MANAGEMENT
Ball Corp. Makes Certain Its Workers Understand, by C. T. Post, June 12 p 28
Communications and Costs Can Alter the Bottom Line, by K. W. Bennett, June 26 p 28
Computer Prophecies Keep Laclede on Track, Apr 24 p MP-20
Don't Worry About Production; Watch Maintenance Costs, by K. W. Bennett, Jan 30 p 23
Labor Leaders, Managers Break Bread Together, June 12 p 14
McKee Builds Its Personnel the Way It Builds Industry, by G. A. Weimer, Apr 3 p 32
Making Success Out of Risk in a Crisis Marketplace, by G. A. Weimer, Jan 9 p 16
Managers Seek Best Way Around to Adjust for Inflation, by P. J. Cathey, Feb 6 p 47
Metalworking Boosts Return on Sales and Assets, by J. D. Baxter, May 22 p 39
Needed by the Board - An Audit Committee, Apr 10 p 49
Not By Love Alone, by Gene Beaudet, Mar 27 p 3
Nothing is More Crucial than Knowing Real Costs, Jan 23 p 18

J. M. MANGAN
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

MICHAEL MANLEY
Carribean Bauxite Loses Ground in U. S. Markets, by R. J. Regan, Mar 6 p 30

MANUFACTURERS HANOVER TRUST CO.
Dollar's Drop Abroad Hits Business at Home, May 29 p 23
Improved Cash Flow Was Overplayed in '77, Mar 20 p 22
It's Time to Watch Inventory-Sales Ratio, May 8 p 29
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

MANUFACTURING & CONSULTING SERVICES, INC.
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37

MANUFACTURING DATA SYSTEMS, INC.
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

MANUFACTURING METHODS
Entry-Level Computers Attract Manufacturing, by A. M. Greene, May 1 p 42
GM's PUMA Robot Tackles Assembly Line Chores, June 5 p 12
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43
Pultrusion: Composites' Road to Mass Production, by C. T. Post, Jan 30 p 27
Quality Engineering Can be a Real Profit Center, by R. R. Irving, Apr 17 p 53

E. A. MARCH
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59

ALVIN T. MARGULIS
We Now Have Two Ways to Watch Prices Rise, by Michael Marley, Mar 13 p 34

MARINE TECHNOLOGY
Ore Reduction Plants Could Be Put to Sea, May 22 p MP-3

MARKETING
How You Can Get Government Export Marketing Help, Jan 2 p 79
Making Success Out of Risk in a Crisis Marketplace, by G. A. Weimer, Jan 9 p 16

Metalworking Vital Signs Require a Second Opinion, Mar 27 p 11

ANTHONY J. MAROLDA
Metalworking's Merger Fever Hits New High, by P. J. Cathey, June 12 p 23

F. RAY MARSHALL
Founders Cast Lines for Government Understanding, Mar 6 p 10
Government Puts Heat on for a Coal Settlement, Feb 27 p 11
Government to Station Inspectors in Coal Mines, May 8 p 18
Labor Does the Job, Jan 23 p 25
Settlement Won't Burn Off Coal's Basic Problems, by G. A. Weimer, Feb 27 p 21

PHILIP R. MARSILIUS
Machine Tools to China Could Spark U. S. Economy, Mar 27 p 16
The New Eximbankers Foreclose on Apathy, by F. W. Bowers, Feb 13 p 22

GUY MARTIN
Mining Interests Don't Like to Be Kept Waiting, June 19 p 89

MARTIN ENGINEERING CO.
Vibratory Stress Relief: Black Magic or Cure-All? by R. R. Irving, Apr 17 p 56

MARTIN MARIETTA ALUMINUM DIV.
What's New for Aluminum in '78, by R. J. Regan, Jan 16 p 22

W. W. MASON
U. S. Asked to Encourage Coal Exports to Japan, May 1 p 11

MASONEILAN INTERNATIONAL CO.
Valvemakers Switch to Plasma Hardfacing, Mar 6 p 43

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18

MASSEY-FERGUSON, LTD.
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

MATERIALS
Advanced Materials Given Room to Fly in Aerospace, B. H. LeCerf and A. M. Greene, June 19 p 53
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29
Stockpile's Caretakers Plan to Go Shopping, Feb 6 p 14

MATERIALS HANDLING
GM's PUMA Robot Tackles Assembly Line Chores, June 5 p 12
Optical Sensors Impact Coil Handling System, Mar 27 p MP-42
Palletizing . . . Hot Trend in Automatic Parts Handling, by J. B. Pond and B. H. LeCerf, Apr 24 p 43
Robot Ends Fatigue in Hot PM Forging, Jan 23 p 32

MATERIALS NEWSFRONT
Weekly recapitulation of prices covering steel, nonferrous metals and scrap.

MATHEMATICAL APPLICATIONS GROUP, INC.
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37

DON MATHEWS
Missile Chill Factor Warms Hughes Engineers, June 26 p 39

RICHARD A. MATHIAS
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

JAMES MATICE
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

DAN MAWER
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33

PAUL MAY
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

WALTER M. MAY
Driving Market Forces Keep Diesels Going, by G. A. Weimer, June 26 p 21

DAVID MAYERS
Alcan Plans to Be a Smart Shopper, Apr 3 p 63
Aluminum's New Price is Still Airtight, May 15 p 60

GEORGE MEANY
AFL-CIO Comes Out Strong for Protectionism, Mar 6 p 11
Meany Stalls Carter's Fight Against Inflation, May 22 p 11
Why Mr. Meany Was Half Right, by Gene Beaudet, May 22 p 3

MEETINGS AND CONVENTIONS
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99
Machine Tool Makers Like Near-Term Outlook, Apr 10 p 28
1978 Meetings and Conventions, Jan 2 p 116

LARRY F. MEGOW
Plate Fabricators: Deep in the Heart of Houston, by R. R. Irving, May 8 p 59

MELLON BANK
Count on Short-Term Interest Rates to Rise, Mar 27 p 27

SAM MENDELOW
NDT Methods Combine to Tackle Stress, Apr 10 p 105

MERCEDES-BENZ OF NORTH AMERICA
Driving Market Forces Keep Diesels Going, by G. A. Weimer, June 26 p 21

MERGERS
Bell Wants More Data on Lykes-LTV Plan, June 26 p 13
Copper Producers Find a Lucky Penny, Apr 24 p 68
Don't Compare Merger Surge with that of the 1960's, May 1 p 21
Eaton Snaps Up a Third of Cutler-Hammer, June 26 p 14
Economic Climate Nourishes Bumper Crop of Mergers, Jan 30 p 19
Fruehauf Must Divest Its Kelsey-Hayes Assets, Mar 27 p 18
Is Giddings & Lewis Returning to Its Roots? Jan 9 p 12
Kennecott Ahead in Voting, Without 'Mislaid' Proxies, June 5 p 15
Kennecott, Curtiss-Wright Drawing Their Battle Lines, Apr 17 p 15
Kennecott Fought Hard to Stay in Control, May 15 p 18
Kennecott Shareholders Day of Decision - May 2, May 1 p 9
Less Metals Mergers in '77 May Have Been More, Feb 20 p 21
Merger Activity is Up on Worldwide Basis, Mar 20 p 22
Metalworking's Merger Fever Hits New High, by P. J. Cathey, June 12 p 23
Metals Merger Activity Continues to Swirl, May 1 p 10
Results of Kennecott Proxy Battle Delayed, May 29 p 18
Steelworkers' Jobs Hinge on Lykes-LTV Merger, May 8 p 14
This Time, Kennecott's on the Inside Looking Out, Apr 3 p 61

PETER W. MERNER
Copper's Price Stands on Shaky Ground, May 15 p 57
War and Peace Study Plots Aluminum's Future, by F. W. Bowers, May 1 p 30

MERRILL LYNCH, PIERCE, FENNER & SMITH
What Makes Up an Award Winning Annual Report, Feb 27 p 16

ALBIN F. MESKE
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

METAL BUILDING MANUFACTURERS ASSN.
Metal Building Sales Keep Looking Good, Mar 20 p 15

METAL FORMING
Automatic Hot-Forming Takes a Quantam Jump, by J. B. Pond, Mar 20 p 43

METAL GOODS SERVICE CENTER
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

METAL TRADERS, INC.
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41

METALLIC GLASSES
Scientific Curiosities Look for Jobs in Industry, Jan 9 p 32

METALLIZED PRODUCTS DIV.
EB Curing Foils High Costs of Material Costs, Mar 13 p 63

METALLURGICAL INTERNATIONAL, INC.
Valvemakers Switch to Plasma Hardfacing, Mar 6 p 43

METALLURGY
An Advance in Superalloys, June 5 p 64
Chromium Substitutes Worth a Second Look, by B. H. LeCerf, May 29 p 42
Coal Gasification: Steel's Toughest Environment Yet, by R. R. Irving, Mar 6 p 35
Cold Compaction Broadens Market for Titanium PM, by G. A. Weimer, May 8 p 70
Magnesium Helps Steel Get the Sulfur Out, May 22 p MP-19

METAL POWDER INDUSTRIES FEDERATION
Metal Powders Enjoy Peaceful Growth, May 15 p 58

METAL PROPERTIES COUNCIL
Coal Gasification: Steel's Toughest Environment Yet, by R. R. Irving, Mar 6 p 35

METAL SCRAP RESEARCH AND EDUCATION FOUNDATION
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

METAL PRODUCING NEWSFRONT
(Limited to Metalproducing Edition)
Concise news items and technical articles in the Metalworking Industry...Issued Once a month.

METALWORKING INDUSTRY
Business Issue of the Year . . . and Beyond, by Gene Beaudet, Jan 2 p 3
Cost-Push Inflation Pumps Up Metalworking Prices, May 29 p 16
How Can Metalworking Stop Liquidating Itself? June 12 p 21
Inflation is Incredible Hulk to Metalworking Companies, by J. D. Baxter, June 19 p 41
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27
Less Metals Mergers in '77 May Have Been More, Feb 20 p 21
Metalworking Boosts Return on Sales and Assets, by J. D. Baxter, May 22 p 39
Metalworking is Mostly Up But Warning Flags Fly, Feb 20 p 13
Metalproducers Must Answer to Government, Jan 30 p MP-1
Metalworker Activity Continues to Swirl, May 1 p 10
Metalworking Profits Grow in '78s First Quarter, May 29 p 23
Metalworking 1978 as Seen by 100 Analysts, by J. D. Baxter, Feb 20 p 25
Metalworking Profits Have Surprising First Quarter, May 15 p 26
Metalworking Racks Up Record Sales and Profits, Feb 13 p 21
Metalworking Vital Signs Require a Second Opinion, Mar 27 p 11
Metalworking's Merger Fever Hits New High, by P. J. Cathey, June 12 p 23
Metalworking's Winners in Financial Reporting, Mar 13 p 28
Nothing a Few Big Spenders Wouldn't Cure, June 19 p 13
The Postponable Recession, by Gene Beaudet, Apr 10 p 3
Profits Companies Saw are Not What They Got, Apr 24 p 25
Profits Decline to Record High-How's That, Again? by J. D. Baxter, Apr 17 p 25
R & D A Matter of Survival? You Bet! by Gene Beaudet, Jan 30 p 3
Sizing Up Carter's Impact on Metalworking, by F. W. Bowers, Jan 23 p 19
Steady Gains and Shaky Confidence, Jan 2 p 17
Trade Association Directory, Jan 2 p 109
U. S. Companies Plan More Spending Abroad, Apr 10 p 26
What Product Liability is Doing to Larger Companies, by R. R. Irving, Mar 20 p 39
Who to Believe? Why Not You? by Gene Beaudet, Apr 3 p 3
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20
The Worst May be Over for Metalworking in '78, May 22 p 12

METALWORKING NEWSFRONT
Weekly Digest of news and events covering all aspects of the Steel and Nonferrous Industry

METCUT RESEARCH ASSOCIATES
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

METFORM ENGINEERING LTD.
NC-CAD/CIM Report, by J. B. Pond, June 5 p 45

METHANE
Hunt for Energy Turns to Cow Pasture, Apr 3 p 15

REUBEN METTLER
What this Country Needs is an Investment Policy, May 15 p 16

METRIC SYSTEM
Electronics Helps Fastening Move from Art to Science, by R. R. Irving, June 26 p 32
The Metric Boom Has a Faulty Legal Fuze, May 22 p 77
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20

FLORENCE R. MEYER
Weld Costs Plummet with Ultrasonics, by D. A. Van Cleave, Apr 3 p 48

ARTHUR R. MEYERS
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

GERALD MEYERS
AMC and Renault to Join Forces, Apr 10 p 23

GERALD MEYERS
Automakers Trim Output as Sales Slump Persists, Feb 13 p 14

JOHN G. MEZOFF
New Capacity, Processes Boost Magnesium Output, June 19 p MP-6

MICHIGAN STATE UNIVERSITY
Iceberg Transport Could Open New Industry, by D. A. Van Cleave, Feb 27 p 31

MICHIGAN TECHNOLOGICAL UNIVERSITY
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39

MICROCOMPUTERS
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

MICROPROCESSORS
Machine Tool Makers Like Near-Term Outlook, Apr 10 p 28
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35
NC-CAD/CIM Report, by J. B. Pond, June 5 p 45
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

MIDLAND-ROSS CORP.
Making Success Out of Risk in a Crisis Marketplace, by G. A. Weimer, Jan 9 p 16
There are Ways to Avoid Capital Goods Cycles, May 22 p 29

MIDDLE TENNESSEE STATE UNIVERSITY
Steel Cost Feud Goes into Overtime, May 15 p 60

MIDREX CORP.
Ore Reduction Plants Could Be Put to Sea, May 22 p MP-3

MID-WEST CO.
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25

MILES METAL CO.
Copper Movement Not Enough to Spur Price Improvement, Jan 23 p 39

JAMES MILHOLLAND
Computer Bundles Growth and Diversity Into Neater Package, Mar 27 p MP-45

MILLARD METAL SERVICE CENTER
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

ARNOLD MILLER
Coal Strike Inches Its Way Toward a Settlement, Jan 30 p 13
Coal Supplies Dwindle as UMW Negotiations Dawdle, Feb 20 p 11
Long Strike Weakens UMW Unity, Miller's Strength, Mar 20 p 12
Settlements Won't Burn Off Coal's Basic Problems, by G. A. Weimer, Feb 27 p 21

G. WILLIAM MILLER
What Kind of Chairman Will William Miller Be? Jan 9 p 11
Steel's World is Troubled, Distributors are Told, June 12 p 13

GENE MILLER
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33

JAMES A. MILLER
Metalworking Profits Have Surprising First Quarter, May 15 p 26

JEROME F. MILLER
FCD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 59

MILLER COMPRESSING CO.
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

HERMAN MILLER, INC.
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

FRANK MILLIKEN
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41
Kennecott, Curtiss-Wright Drawing Their Battle Lines, Apr 17 p 15
Kennecott Fought Hard to Stay in Control, May 15 p 18
Kennecott Shareholders Day of Decision - May 2, May 1 p 9
This Time, Kennecott's on the Inside Looking Out, Apr 3 p 61

WILLIAM G. MILLIKEN
Chrysler Boosts Spending to Redesign Its Cars, May 15 p 18

MILLING
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

DANIEL MINCHEW
White House Undercuts ITC Action on Pipe Imports, May 8 p 11
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
Without Bolts and Screws, U. S. Security is Threadbare, by F. W. Bowers, Feb 20 p 28

MINERALS
Government Launches Critical Study of Non-Fuel Minerals, Jan 9 p 11
Metalproducers Must Answer to Government, Jan 30 p MP-1
Minerals Won't Get Hard to Come By, June 19 p MP-3
Proposed Wilderness Area is Rich in Minerals, May 15 p 19
U. S. Metal Ore Output Fell 6 Pct in '77, Feb 6 p 15
What's Being Done About Off-Limits Minerals Lands? by E. W. Bowers, Mar 13 p 31

MINERALS & RESOURCES CORP.
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41

MINICOMPUTERS
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

MINING INDUSTRY
Court Reviews Coal Leasing Plan, Mar 13 p 16
Federal Mediators Join Bituminous Coal Talks, Jan 23 p 13
Government Puts Heat on for a Coal Settlement, Feb 27 p 11
Government to Station Inspectors in Coal Mines, May 8 p 18
Miners Should Be Ruled in Public Interest, Feb 6 p 11
Mining Interests Don't Like to Be Kept Waiting, June 19 p 89
New Charge for Coal Mines, May 1 p 41
Settlement Won't Burn Off Coal's Basic Problems, by G. A. Weimer, Feb 27 p 21
When Coal Strike Ends, Its Costs Will Just Begin, Mar 27 p 11

MINSTER MACHINE CO.
Interactive Graphics Mates with NC Flame Cutting, by R. R. Irving, Feb 13 p 46

MITSUBISHI HEAVY INDUSTRIES LTD.
Chrysler Tank Subcontract Causes Concern, by E. W. Bowers, Apr 17 p 30

MITSUI & CO., LTD.
Import Welcome Extended by Japan to U. S., Mar 27 p 17

MITSUI SIEKI KOGYO CO., LTD.
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

ROBERT MITTON
Hanging Platform for High Altitude Rescue Work, Jan 16 p 56

MINORU MIZUNO
High-Frequency Welding Keeps Poles Together, June 19 p MP-3

MOBAY CHEMICAL CORP.
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44

MOLDINGS
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

RICHARD A. MOLL
Adopt Your Own Survival Kit for Products Liability, by R. R Irving, Apr 10 p 99

MONSANTO CO.
Financial Men Tell What's Holding Economy Back, Feb 6 p 35

ARNOLD H. MONTGOMERY
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

JOHN L. MOORE, JR.
The New Eximbankers Foreclose On Apathy, by E. W. Bowers, Feb 13 p 22

JOHN A. MOORHEAD ASSOCIATES
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

THOMAS MOORMAN
Competition is Killing Nickel, by R. J. Regan, May 15 p 29

JACK A. MORAN
Chrysler Tank Subcontract Causes Concern, by E. W. Bowers, Apr 17 p 30

MORGAN CONSTRUCTION CO.
From Morgan to Raritan: A High-Speed Rod Mill, Mar 27 p MP-36
'Now's a Great Time to Build Steel Mills', Mar 27 p MP-3

MORGAN GUARANTY BANK
Credit Demand May Surge in the Second Half, Mar 6 p 19

AKIO MORITA
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

MORRIS, WHEELER & CO.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

DAVID MORRISON
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18

MORROW STEEL CORP.
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

CHARLES G. MOSEY
Warning: This Legislation May Be Dangerous to Business, Jan 9 p 19

MOSEY MFG. CO., INC.
Warning: This Legislation May Be Dangerous to Business, Jan 9 p 19

FRANK MOSS
What's Being Done About Off-Limits Minerals Lands? by E. W. Bowers, Mar 13 p 31

MOTCH & MERRYWEATHER MACHINERY CO.
Is Giddings & Lewis Returning to Its Roots? Jan 9 p 12

MOTOR VEHICLE MANUFACTURERS ASSN.
Driving Market Forces Keep Diesels Going, by G. A. Weimer, June 26 p 21

MOTOR WHEEL CORP.
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

HANS MUELLER
Steel Cost Feud Goes into Overtime, May 15 p 60

FRANZ MULLER
Will Plasma Steelmaking Replace the Electric Furnace? Apr 24 p MP-29

ROBERT MUNDHEIM
Trigger Prices Mechanism Gets Some Close Analysis, Feb 13 p 11
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25
Why Carter Wanted Trigger, Not Quotas, Mar 20 p 13

GEORGE B. MUNROE
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41
Copper's Latest Plea is a Loaded Question, by R. J. Regan, Mar 25 p 29
Copper's Price Stands on Shaky Ground, May 15 p 57
Life with Copper Takes on New Meaning, by R. J. Regan, Feb 6 p 41
The Sky Is Falling on Copper Producers, by E. W. Bowers, Mar 27 p 39

TADASHI MURAYAMA
Water Emulsions Won't Be a "Tiger" in Your Tank, May 15 p 43

THOMAS A. MURPHY
Breakthrough Recharges Electric Car's Future, Mar 27 p 16
Speeding Automakers Fight to Hold the Road, Jan 23 p 11
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

JAMES F. MURRAY
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

RALPH MURRAY
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

ALFRED J. MURRER
Metalworking Profits Have Surprising First Quarter, May 15 p 26

FRANK MUSCATELL
New Family Adopts E-Brite Stainless, by D. A. Van Cleave, Mar 27 p 47

ALBERT MUSSCHOOT
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

N

NCR CORP.
Entry-Level Computers Attract Manufacturing, by A. M. Greene, May 1 p 42
Government Rules Sought on Technology Transfers, Jan 9 p 13

N. F. E. INTERNATIONAL, INC.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

NAGEL GMBH
Vibratory Stress Relief: Black Magic or Cure-All? by R. R.Irving, Apr 17 p 56

SAM I. NAKAGAMA
Inflation Rate Could Rise to 8 Pct, Economist Warns, Jan 30 p 18

NALCO CHEMICAL CO.
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9

ELMER NARCISSI
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Battery Breakthrough Recharges Electric Auto, by G. A. Weimer, Apr 24 p 32
Breakthrough Recharges Electric Car's Future, Mar 27 p 16
Chromium Substitutes Worth a Second Look, by B. H. LeCerf, May 29 p 42
Corrosion is Our National Financial Disgrace, by J. J. Obrzut, Apr 3 p 41
Futuristic Combat Planes, Apr 10 p 105
Hand-Held X-Ray Device, Feb 13 p 53
Turboprop Engines May Return to Airline Scene, Jan 16 p 13

NATIONAL ALLIANCE OF BUSINESSMEN
What this Country Needs is an Investment Policy, May 15 p 16

NATIONAL ASSN. OF ALUMINUM DISTRIBUTORS
Aluminum Distributors Top Producers in Shipments, Jan 16 p 71
Aluminum Service Centers Stay Ahead of Producers, June 19 p 95
Aluminum Stocks Begin to Swell, Feb 13 p 65
Coal Strike Reins '78 Aluminum Production, Mar 20 p 63
"Quick Pulse" Puts Finger on Aluminum Shipments, May 8 p 88

NATIONAL ASSN. OF CREDIT MANAGEMENT
When a Dollar Floats, Will Interest Rates Sink? Apr 24 p 25

NATIONAL ASSN. OF HOME BUILDERS
Housing's Final Curtain, May 8 p 41
Housing's on the Run, June 5 p 36
Starts Come to a Stop, Mar 6 p 29

NATIONAL ASSN. OF MANUFACTURERS
Labor Lacks Political Clout, Says Larry, Mar 20 p 15
Opposition to Labor Reforms Bill Mounts, Jan 16 p 12

NATIONAL ASSN. OF METAL FINISHERS
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39

NATIONAL ASSN. OF PURCHASING MANAGEMENT
Capital Spending Prospects as Viewed by Purchasers, Jan 30 p 19
Price Increases Continue to Worry Purchasers, June 5 p 14

NATIONAL ASSN. OF RECYCLING INDUSTRIES
Competition is Killing Nickel, by R. J. Regan, May 15 p 29
Copper Faces a Decisive Second Half '78, by R. J. Regan, June 19 p 41
NARI, Bureau of Mines Sign Mutual Aid Accord, June 19 p 18
Nickel Producers Wish the Future Were Here, Mar 13 p 90
Recyclers Can Help When Copper Runs Low, Mar 27 p 79

NATIONAL AUDUBON SOCIETY
What's Being Done About Off-Limits Minerals Lands? by E. W. Bowers, Mar 13 p 31

NATIONAL BUREAU OF ECONOMIC RESEARCH
Search is On to Improve Productivity, Feb 13 p 21

NATIONAL BUREAU OF STANDARDS
Corrosion is Our National Financial Disgrace, by J. J. Obrzut, Apr 3 p 41

NATIONAL CENTER FOR PRODUCTIVITY AND QUALITY OF WORKING LIFE
Productivity Drop Has Cost Nation $100 Billion, Jan 16 p 11
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

NATIONAL CENTER FOR RESOURCE RECOVERY
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

NATIONAL COIL COATERS ASSN.
Coil Coaters Seek a 'Perfect' Galvanized Steel, by J. J. Obrzut, May 1 p 37

NATIONAL COMPUTER SYSTEMS, INC.
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37

NATIONAL CONFERENCE OF STATE LEGISLATURES
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

NATIONAL FEDERATION OF INDEPENDENT BUSINESS
Supreme Court's Deciding if OSHA Can Barge Ahead, Jan 23 p 13

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
'Elliptic' Tires OKd for Goodyear Production, June 12 p 16

NATIONAL LABOR RELATIONS BOARD
Warning: This Legislation May Be Dangerous to Business, Jan 9 p 19

NATIONAL LEGAL CENTER FOR PUBLIC INTEREST
Who Repealed the First Amendment, Anyway? by Gene Beaudet, May 8 p 3

NATIONAL MACHINE TOOL BUILDERS ASSN.
Auto Retooling is Aiding Machine Tool Orders, Jan 9 p 11
Automakers are Keeping Machine Tool Builders, Mar 6 p 9
Autos' Weight Loss is Machine Tools' Gain, Apr 3 p 9
Boom Times are Here for Machine Tool Makers, June 5 p 12
Capital Spending Halved by High Inflation, May 29 p 13
Chrysler Tank Subcontract Causes Concern, by E. W. Bowers, Apr 17 p 30
Extend Life of Eximbank, Tool Builders Urge, Apr 3 p 13
Finally- Official Word on Product Liability, Apr 17 p 11
How Can Metalworking Stop Liquidating Itself? June 12 p 21
Machine Tool Builders Wrap Up a Good Year, Feb 6 p 11
Machine Tool Orders Up Sharply in First Quarter, May 1 p 9
Machine Tools to China Could Spark U. S. Economy, Mar 27 p 16
The New Eximbankers Foreclose on Apathy, E. W. Bowers, Feb 13 p 22
Product Liability 'Mess' Keeps Getting Messier, Mar 13 p 16
Technologies, Not Products, to Get Export Controls, by E. W. Bowers, June 19 p 47
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

NATIONAL MATERIALS ADVISORY BOARD
Chromium Substitutes Worth a Second Look, by B. H. LeCerf, May 29 p 42

NATIONAL SCIENCE FOUNDATION
Iceberg Transport Could Open New Industry, by D. A. Van Cleave, Feb 27 p 31
Real Growth Absent in '78 R & D Spending, Jan 16 p 12

NATIONAL SCREW MACHINE PRODUCTS ASSN.
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

NATIONAL SEMICONDUCTOR CORP.
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33

NATIONAL STEEL CORP.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Steel Companies are Ready to Make their Move, Apr 17 p 79
Steel: '78 Rides on More Use, Fewer Imports, Jan 2 p 151
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G.J. McManus and R. J. Regan, May 15 p 32
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

NATIONAL STEEL SERVICE CENTER INC.
Service Centers Expect to Ship 10 Pct More in '78, May 22 p 13
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

NATIONAL TOOL, DIE & PRECISION MACHINING ASSN.
Auto Redesign Should Help Tool & Die Sales, Jan 16 p 11
Business Raises Voice Against Carter's Proposals, Mar 20 p 12
Small Car Design Will Change Tooling Market, Feb 20 p 12
Tool and Die Industry Told to Boost Investments, Mar 6 p 11
Tool and Die Orders May Increase 14 Pct, Apr 17 p 11
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

NATIONAL ZINC CO.
Snubbed by ITC, Zinc Turns Up Its Price, June 19 p 87

NATURAL GAS
Energy Costs by 1985; Energy Mix by 2000 A. D., Apr 3 p 14

NATURAL GAS PIPELINE CO.
Hunt for Energy Turns to Cow Pasture, Apr 3 p 15

NELSEN STEEL & WIRE CO.
Large-Diameter Wire Serves Growing Markets, June 19 p 19

GAYLORD NELSON
Tax Deduction Could Ease Product Liability Problem, May 29 p 14

NET SYSTEMS, INC.
NDT Methods Combine to Tackle Stress, Apr 10 p 105

KLAUS NETTELBECK
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

NEW YORK FEDERAL RESERVE BANK
Can You Believe These Guys? by Gene Beaudet, Mar 13 p 3

THOMAS J. NICHOL
New Family Adopts E-Brite Stainless, by D. A. Van Cleave, Mar 27 p 47

NICKEL
Beryllium Nickel Strip Gets Better with Age, by B. H. LeCerf, May 22 p 84
Competition is Killing Nickel, by R. J. Regan, May 15 p 29
Global Nickel Takes Its Knocks; Production Dips, Jan 23 p 39
Inco Begins to See Some Real Growth, May 29 p 49
Inco Production Gets Stay of Execution, Apr 24 p 64
Inco's Selling More Nickel But Making Less, May 1 p 53
New Year Promises More of the Same for Inco, Jan 9 p 39
Nickel Accord Raises Law of the Sea Hopes, May 29 p 50
Nickel Coating Prepares Aluminum for Brazing, May 8 p 69
Nickel Prices Take One Step Back, June 12 p 59
Nickel Producers Wish the Future Were Now, Mar 13 p 90

ORAN W. NICKS
Turboprop Engines May Return to Airline Scene, Jan 16 p 13

EDWIN N. NILSON
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37

BRUCE NILSSON
Tubing Capacity Swells as Technology Expands, June 12 p 16

NIPPON CRUCIBLE CO. LTD.
Ingot Stool Insert Popular with Japanese Steelmakers, Mar 27 p MP-3

NIPPON KOKAN
How Centralized Control Effects Energy Savings, Feb 27 p MP-27
High-Frequency Welding Keeps Poles Together, June 19 p MP-3
New Coke Quench Data Jolts Steel Mills, by G. J. McManus, Jan 30 p MP-5
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15
Two Japanese Steelmakers Claim World Records, Jan 30 p MP-2
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29

NIPPON STEEL CORP.
From Japan Comes Hints for a Steel Quota Scheme, Mar 13 p 11
Steel Technology - The View from Japan, by G.J. McManus, Mar 27 p MP-15
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29

NISSAN MOTOR CO., LTD.
Nissan Plans to Set Up Shop in the U. S., May 15 p 16

NOISE
A Hush Will Fall Over OSHA-EPA Noise Squabble, May 22 p 14
Noise Control Among Forgers is More than a Whisper, by J. J. Obrzut, Mar 13 p 65

NOMURA-HUDSON, INC.
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

NONDESTRUCTIVE TESTING
Consumer-Demands Change NDT Practice, Jan 30 p 32
High Technology Erupts on the NDT Scene, by R. R. Irving, May 15 p 39
NDT Methods Combine to Tackle Stress, Apr 10 p 105
What It Takes to Get an N Stamp, by R. R. Irving, Jan 23 p 28

NONFERROUS INDUSTRY
Metalworking Boosts Returns on Sales and Assets, by J. D. Baxter, May 22 p 39
Steel and Copper Workers Eligible for Job Assistance, Apr 3 p 15
Steel Hit Bottom in '77; Nonferrous Had Mixed Year, by P. J. Cathey and R. J. Regan, Apr 24 p 35
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G.J. McManus and R. J. Regan, May 15 p 32

NONFERROUS METALS
Annual Statistical Review, Jan 2 p 93
Bills Pile High for Stockpile Sales, Apr 3 p 13
CIA Uncovers Chinese Metals, June 26 p 56
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27
Nonferrous: Energy Looms as Common Obstacle, Jan 2 p 151
U. S. Metal Ore Output Fell 6 Pct in '77, Feb 6 p 15

KARLFRIED NORDMANN
Driving Market Forces Keep Diesels Going, by G. A. Weimer, June 26 p 21

NORFOLK IRON & METAL CO.
Service Centers Expect to Ship 10 Pct More in '78, May 22 p 13

ROBERT M. NORRIS
Don't Throw Away DISC, Trade Council Warns, Apr 10 p 24

NORTHRUP CORP.
Advanced Materials Given Room to Fly in Aerospace, by B.H. LeCerf and A. M. Greene, June 19 p 53

NORTH SEA
North Sea Oil Will Turn British Economy Around, Jan 30 p 18

NORTHWEST INDUSTRIES, INC.
Keep Cash Flowing through Capital Spending, May 1 p 21

NORTHWESTERN STEEL AND WIRE CO.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

NOSE CONES
Metal Spinning for a Special Nose Job, Feb 27 p 33

ROBERT NOTTELMAN
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

NUCLEAR POWER
Ceramic Containers Store Nuclear Waste, Jan 9 p 32
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
Energy Costs by 1985; Energy Mix by 2000 A. D., Apr 3 p 14
It's Getting Harder to Get Power to the People, by G. J. McManus, Mar 6 p 26
Supreme Court Limits Nuclear Plant Challenges, Apr 24 p 16
What It Takes to Get an N Stamp, by R. R. Irving, Jan 23 p 28

NUCLEAR REGULATORY COMMISSION
It's Getting Harder to Get Power to the People, by G. J. McManus, Mar 6 p 26
Supreme Court Limits Nuclear Plant Challenges, Apr 24 p 16
What It Takes to Get an N Stamp, by R. R. Irving, Jan 23 p 28

NUCOR CORP.
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
Steelmaker Fears Trigger Price Backfire, Feb 27 p MP-3

NUMERICAL CONTROL
Interactive Graphics Mates with NC Flame Cutting, by R. R. Irving, Feb 13 p 46
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37
Machine Tool Makers Like Near-Term Outlook, Apr 10 p 28
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35
NC-CAD/CIM Report, by J. B. Pond, June 5 p 45
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43
Small Metal Fabricators Can Get NC Software, Mar 27 p 50

NUMERICAL CONTROL SOCIETY
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

O

OAK RIDGE NATIONAL LABORATORY
An Advance in Superalloys, June 5 p 64
Coal Gasification: Steel's Toughest Environment, by R. R. Irving, Mar 6 p 35

MARY R. OAKAR
Carter's Fastener Decision May Not Hold Up, Feb 27 p 14

ROBERT F. OBEAR
Billet Grinding Moves into High Speed Operation, by C. T. Post, Apr 24 p MP-25

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
Can Industry Afford Pollution Control's Costs? by J.J. Obrzut, Feb 20 p 39
Founders Cast Lines for Government Understanding, Mar 6 p 10
Government's Regulatory Game is Dirty Pool, May 15 p 35
A Hush Will Fall Over OSHA-EPA Noise Squabble, May 22 p 14
Industry Challenges New OSHA Rule on Benzene, Feb 20 p 12
New Copper Standard Will Hit Copper Hard, May 15 p 20
OSHA's Carcinogen Rules too Expensive, Study Says, Apr 10 p 18
OSHA Must Have More Rules- Bingham, June 26 p 13

OSHA Must Have Warrants, But Nothing Has Changed, June 5 p 11
A Safe Foundry is Hard to Produce, Apr 24 p MP-3
Supreme Court's Deciding if OSHA Can Barge Ahead, Jan 23 p 13

DENNIS O'CONNELL
Optical Sensors Impact Coil Handling System, Mar 27 p MP-42

JACK O'DELL
Aircraft Makers Prepare for Smooth Take-off, by B. H. LeCerf, June 12 p 32

R. D. O'DONNELL
Can Sheet Keeps Aluminum Rolling, May 29 p 54

CHARLES F. OFFENHAUSER
Plate Fabricators: Deep in the Heart of Houston, by R. R. Irving, May 8 p 59

OFFENHAUSER CO.
Plate Fabricators: Deep in the Heart of Houston, by R. R. Irving, May 8 p 59

OFFICE EQUIPMENT
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

OFFICE FURNITURE
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

OGDEN CORP.
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

PAUL O'HARRA
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9

OHIO STEEL TUBE CO.
Tubing Capacity Swells as Technology Expands, June 12 p 16

OIL
Import Oil Flood Drowns U. S. Trade Balance, Feb 13 p 12
Oil Imports Will Level Off, Not Decline, this Year, Jan 16 p 14

KOICHI OITA
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29

J. L. O'KEEFE, JR.
Government-Industry System Waves the Flag on Defects, by R. R. Irving, Jan 16 p 54

ARTHUR OKUN
Can You Believe These Guys? by Gene Beaudet, Mar 13 p 3

OMICRON, INC.
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

JUSTIN S. OPPENHEIM
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

OPPENHEIMER & CO.
Aluminum Stocks Begin to Swell, Feb 13 p 65
War and Peace Study Plots Aluminum's Future, by E. W. Bowers, May 1 p 30

OPTICAL SENSORS
Optical Sensors Impact Coil Handling System, Mar 27 p MP-42

KURT ORBAN
From Japan Comes Hints for a Steel Quota Scheme, Mar 13 p 11
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25
Trigger Prices Score Bull's-Eye, Importers Say, Mar 6 p 61
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

KURT ORBAN CO., INC.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

ORES
U. S. Metal Ore Output Fell 6 Pct in '77, Feb 6 p 15

G. J. ORIGLIA
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51

M. N. ORNITZ
Power Drain Threatens Thousands of Jobs, Feb 20 p 65

LOUIS ORNSTEIN
Fasteners Makers Defy Administration on Imports, by G. A. Weimer, June 5 p 31

DAVID ORZECHOWSKI
Making Success Out of Risk in a Crisis Marketplace, by G. A. Weimer, Jan 9 p 16

CLYDE OSBORN
Aircraft Makers Prepare for Smooth Take-off, by B. H. LeCerf, June 12 p 32

OSBORN MFG. CO.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

WILLIAM OSHINSKI
Don't Worry About Production; Watch Maintenance Costs, by K. W. Bennett, Jan 30 p 23

J. ALLEN OVERTON
The Sky *Is* Falling on Copper Producers, by E. W. Bowers, Mar 27 p 39

P

PBI INDUSTRIES, INC.
Structural Fabricators Fear Trigger Ricochet, Feb 6 p 16

PACE CO.
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44

PACIFIC METAL CO.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

PACIFIC PRESS & SHEAR CO.
Making a Big Impression on Stamping Technology, May 15 p 43

LOUIS PADNOS IRON & METAL CO.
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

CARL PAGE
NC-CAD/CIM Report, by J. B. Pond, June 5 p 45

PAINTS
Some Thoughts About Cleaning Steel for Painting, by J. J. Obrzut, Mar 27 p 52

PALLETS
Palletizing . . . Hot Trend in Automatic Parts Handling, by J. B. Pond, and B. H. LeCerf, Apr 24 p 43

RALPH C. PALMER
Labor Leaders, Managers Break Bread Together, June 12 p 14

PAN AMERICAN WORLD AIRWAYS, INC.
Pan Am Picks L-1011s for Its Long Range Fleet, Apr 24 p 14

PANGBORN DIV.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

L. T. PAPAY
It's Getting Harder to Get Power to the People, by G. J. McManus, Mar 6 p 26

PARADYNE CORP.
Computer Bundles Growth and Diversity Into Neater Package, Mar 27 p MP-45

PARKER CO.
Coil Coaters Seek a 'Perfect' Galvanized Steel, by J. J. Obrzut, May 1 p 37

PARKER HANNIFIN CORP.
Metals Merger Activity Continues to Swirl, May 1 p 10

PARKER HUNTER, INC.
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32

CHARLES W. PARRY
Carribean Bauxite Loses Ground in U. S. Markets, by R. J. Regan, Mar 6 p 30

RALPH M. PARSONS CO.
Coal Gasification: Steel's Toughest Environment, by R. R. Irving, Mar 6 p 35

PATON INSTITUTE
Dimetrics Signs License for Soviet Technology, Apr 24 p 15

JOHN PATTON
Don't Worry About Production; Watch Maintenance Costs, by K. W. Bennett, Jan 30 p 23

PATTON CONSULTANTS, INC.
Don't Worry About Production; Watch Maintenance Costs, by K. W. Bennett, Jan 30 p 23

H. W. PAXTON
New Coke Quench Data Jolts Steel Mills, by G. J. McManus, Jan 30 p MP-5
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Steelmakers are Bullish, But is '78 a China Shop? by G. J. McManus, June 5 p 40

ROBERT PEABODY
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51

E. W. PEARSON
Making a Big Impression on Stamping Technology, May 15 p 43

PEAT, MARWICK, MITCHELL & CO.
Complying with Government Costs $65.4 Billion, May 1 p 14

RAYMOND E. PECHACEK
Plate Fabricators: Deep in the Heart of Houston, by R. R. Irving, May 8 p 59

PECHINEY UGINE KUHLMANN CORP.
Across the Atlantic, Aluminum Stays Afloat, by R. J. Regan, Apr 24 p 27
Reynolds Orders Three "New Generation" Casters, Mar 20 p 62

PELLETECH CORP.
Slag, Fines and Fume - Steel's New Raw Material, by G. J. McManus and G. A. Weimer, May 22 p MP-15

LOUIS G. PELOUBET
Managers Seek Best Way to Adjust for Inflation, by P. J. Cathey, Feb 6 p 47

F. E. PELTIER
The Big Decision Behind Major Equipment Breakdowns, by J. J. Obrzut, Jan 16 p 47

PENCO PRODUCTS INC.
Ask Not for Whom the Gavel Tolls, by Tom Dulaney, May 29 p 33

RICHARD PENDLETON
The Sky *Is* Falling on Copper Producers, by E. W. Bowers, Mar 27 p 39

PENNSYLVANIA ENGINEERING CORP.
New Coke Quench Data Jolts Steel Mills, by G. J. McManus, Jan 30 p MP-5
Republic Shows First "From Scratch" Q-BOP Furnaces, May 22 p 82

PENNSYLVANIA FOUNDRYMEN'S ASSN.
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

PENNSYLVANIA STEEL FOUNDRY & MACHINE CO.
OSHA Must Have Warrants, But Nothing Has Changed, June 5 p 11

PENNSYLVANIA UTILITY COMMISSION
Power Drain Threatens Thousands of Jobs, Feb 20 p 65

PENNWALT CORP.
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9

PENSIONS
Don't Worry About Impact of Swelling Pension Funds, Jan 16 p 21
ERISA's Operation Keeps Causing Headaches, Feb 6 p 35

PEOPLE GAS CO.
Hunt for Energy Turns to Cow Pasture, Apr 3 p 15

PEOPLE ON THE MOVE
Timely digest of executives - announcing promotions, transfers and new appointments in the industry

WILLIAM J. PERRY
Technologies, Not Products, to Get Export Controls, by E. W. Bowers, June 19 p 47

PETROLEUM INDUSTRY
Import Oil Flood Drowns U. S. Trade Balance, Feb 13 p 12
Energy Costs by 1985; Energy Mix by 2000 A. D., Apr 3 p 14
North Sea Oil Will Turn British Economy Around, Jan 30 p 18
Oil Imports Will Level Off, Not Decline, this Year, Jan 16 p 14

ROBERT PEW
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

DONALD L. PEYTON
Voluntary Standards: Everyone Wants In, by J. J. Obrzut, May 29 p 39

JOHN S. PHELAN
Construction's Next Build-Up Will be Harder to See, by Joe Barks, May 29 p 28

PHELPS DODGE CORP.
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41
Copper Price Returns to Its Roots, Mar 13 p 89
Copper Shipments Stay with Output-Unfortunately, May 8 p 88
Copper's Latest Plea is a Loaded Question, by R. J. Regan, Mar 25 p 29
Copper's Price Stands on Shaky Ground, May 15 p 57
For Want of 2.64 Cents, a Profit Was Lost, Feb 27 p 41
Life with Copper Takes on New Meaning, by R. J. Regan, Feb 6 p 41
The Sky *Is* Falling on Copper Producers, by E. W. Bowers, Mar 27 p 39

THOMAS PHIPPS
Making Success Out of Risk in a Crisis Marketplace, by G. A. Weimer, Jan 9 p 16

PICKANDS MATHER & CO.
Pickands Mather to Add Third Self-Unloading Ship, Apr 24 p MP-6

WOLFGANG PIETSCH
Ore Reduction Plants Could Be Put to Sea, May 22 p MP-3

PIG IRON
Annual Statistical Review, Jan 2 p 93

OTIS G. PIKE
A Goodbye Man Speaks Out, by Gene Beaudet, Feb 27 p 3

PIPE
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25
Save on Installed Cost of Pressure Piping, Feb 13 p 54
Search for Oil Helps Elcast Strike It Rich, Jan 30 p MP-2
What It Takes to Get an N Stamp, by R. R. Irving, Jan 23 p 28
White House Undercuts ITC Action on Pipe Imports, May 8 p 11

PIPELINES
Dimetrics Signs License for Soviet Technology, Apr 24 p 15

PIPING
Saving on Installed Cost of Pressure Piping, Feb 13 p 54

RICHARD K. PITLER
New Family Adopts E-Brite Stainless, by D. A. Van Cleave, Mar 27 p 47

G. F. PITTMAN, JR.
New Charge for Coal Mines, May 1 p 41

JOHN B. M. PLACE
Copper Prices Reach Verdict - Quota, Not Tariff, Mar 6 p 65
High Regulatory Costs Drags Copper Down, Mar 27 p 75
Life with Copper Takes On New Meaning, by R. J. Regan, Feb 6 p 41

KENNETH PLANT
Housing's on the Run, June 5 p 36

PLASMA TECHNOLOGY
Valvemakers Switch to Hardfacing, Mar 6 p 43
Will Plasma Steelmaking Replace the Electric Furnace? Apr 24 p MP-29

PLASTICS
Add Carbon Black to Plastic for Direct Plateability, by J. J. Obrzut, Jan 30 p 30
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44
New GE Plastic Aimed at Metal's Computer Market, Mar 13 p 16
New Smaller Autos Make Big Use of SMC Plastic, Feb 27 p 13
Pultrusion: Composites' Road to Mass Production, by C. T. Post, Jan 30 p 27
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20

PLATE
Japanese Import Hurt U. S. Plate Producers, Apr 24 p 16

PLATE MILLS
Bethlehem Unveils Marvel in Steel Technology, by K. W. Bennett, June 19 p MP-15

PLATES
Plate Fabricators: Deep in the Heart of Houston, by R. R. Irving, May 8 p 59

PLATFORMS
Hanging Platform for High Altitude Rescue Work, Jan 16 p 56

PLATING
Add Carbon Black to Plastic for Direct Plateability, by J. J. Obrzut, Jan 30 p 30

PLATING
NEW EPA Water Rules Displease Metal Platers, Mar 27 p 17

MAX PLEUSS
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

MEYER POLLACK STEEL CORP.
Ask Not for Whom the Gavel Tolls, by Tom Dulaney May 29 p 33

JERRY POLLOCK
Total Aluminum Recycling System Aids Steelmakers, by G. A. Weimer, June 19 p MP-23

JOHN L. POLLOCK
Pathways Leading to a Healthy Bottom Line, Apr 3 p 24

JOSEPH PONTERI
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

PORT EVERGLADES STEEL CORP.
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25

PORTEC, INC.
Metalworking Profits Have Surprising First Quarter, May 15 p 26

ADOLPH POSNICK
Metalworking Profits Have Surprising First Quarter, May 15 p 26

H. T. POTTS III
Service Centers Expect to Ship 10 Pct More in '78, May 22 p 13

HORACE T. POTTS CO.
Service Centers Expect to Ship 10 Pct More in '78, May 22 p 13

POWDERED METALS
Cold Compaction Broadens Market for Titanium PM, by G. A. Weimer, May 8 p 70
Metal Powders Enjoy Peaceful Growth, May 15 p 58
PM Triggers Vital Savings for Gun Parts, June 19 p 63
Scrap Aluminum Pressed into Metalworking Service, June 26 p 40
Robot Ends Worker Fatigue in Hot PM Forging, Jan 23 p 32

POWELL VALVE CO.
Valvemakers Switch to Plasma Hardfacing, Mar 6 p 43

JULIANNE PRAGER
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18

PRATT & WHITNEY AIRCRAFT CORP.
Advance Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37

PRESSES
Making a Big Impression on Stamping Technology, May 15 p 43
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

J. G. PRICE
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25

PRICES
Aluminum's New Price is Still Airtight, May 15 p 60
Aluminum's Price Seeks Its Own Level, June 12 p 59
Are Lead Price Cuts Only the Beginning? May 22 p 107
Annual Statistical Review, Jan 2 p 93
Anti-TPM Stance Drops Kaiser's Stock 3 Points, May 8 p 14
The Big Gun Behind Trigger Prices, by Tom Dulaney, Mar 6 p 21
Copper Faces Decisive Second Half of '78, by R. J. Regan, June 19 p 41
Copper Movement Not Enough to Spur Price Improvement, Jan 23 p 39
Copper Price Returns to Its Roots, Mar 13 p 89
Copper's Price Stands on Shaky Ground? May 15 p 57
Cost-Push Inflation Pushes Up Metalworking Prices, May 29 p 16
Costs, Prices Run Fast, But Productivity Walks, by J. D. Baxter, Apr 3 p 35
Don't Let Zinc Prices Fall to the Bottom, ITC Told, Mar 20 p 61
Double-Digit Time, June 12 p 35
Double-Digit Time, Again? Feb 27 p 26
Duval's Price Balloon May Stay Airborne, Apr 10 p 155
For Want of 2.64 Cents, a Profit Was Lost, Feb 27 p 41
Free Trade is a Myth in the World Steel Market, Apr 17 p 32
From Japan Comes Hints for a Steel Quota Scheme, Mar 13 p 11
Import Redress Will Take Time for Zinc Producers, Jan 16 p 69
Japanese Don't Want to War over Trigger Prices, Mar 6 p 12
Just Where Do Trigger Prices Misfire? Feb 6 p 11
Lead Stocks Begin to Climb as '77 Closes, Jan 16 p 71
Look for Steel Sheet Price Hike About Aug. 1, June 12 p 13
More Aluminum Products Get a Boost, Feb 27 p 39
New System Tosses Copper Prices to the Wind, June 26 p 53
OK, Call the Cops . . . But on Whom? by Gene Beaudet, May 15 p 3
Price Increases Slow, Feb 6 p 49
Price Stability Comes to Copper Markets, Feb 20 p 63
Prices Rise Slowly, June 19 p 50
Pricing Rigid Aluminum Sheet for Financial Performance, June 19 p 46
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51
Revised Trigger Prices Give Cause for Study, May 15 p 19
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Scrap Price Averages Dipped a Bit in May, June 12 p 61
Scrap Prices Begin to Level Off, May 8 p 95
Silver Use Drops, But Its Price Won't Budge, Apr 10 p 159
Snubbed by ITC, Zinc Turns Up Its Price, June 19 p 87
Steel Cost Feud Goes into Overtime, May 15 p 60
Steel Price Increases Garner Mixed Reviews, Apr 10 p 17
Steel Summary: Getting Some Answers, June 26 p 53
Steel Summary: March is Coming in Like a Lamb, Jan 23 p 39
Steel Summary: Not All Trigger Prices Hit Target, Feb 20 p 63
Steel Summary: Orders Up, But It's Hard to Say Why, Feb 27 p 39
Steel Summary: Price Hikes Ill-Timed? Jan 9 p 39
Steel Summary: Producers Can Name Their Price, Apr 10 p 155
Steel Summary: Trigger Prices Fire Two Blanks, Jan 16 p 69
Steel Summary: Triggers Come Under Fire, May 8 p 87
Steel Summary: Triggers Spur Duels for Demand, Apr 3 p 61
Steel Summary: Users are Buying a World of Steel, Apr 17 p 79
Steel Summary: Users are Paying the Price, Feb 6 p 89
Steel Summary: What's Beyond the June Horizon? May 1 p 53
Steel Summary: Year Starts with a Bang, Jan 30 p 39
Steelmaker Fears Trigger Price Backfire, Feb 27 p MP-3
Steel's World is Troubled, Distributors are Told, June 12 p 13
Structural Fabricators Fear Trigger Ricochet, Feb 6 p 16
Thoughts Triggered by Reference Prices, by Gene Beaudet, Jan 16 p 3
Three for the Money, Jan 16 p 32
Trigger Price Crackdown Coming Up Soon, June 26 p 11
Trigger Price Mechanism Gets Some Close Analysis, Feb 13 p 11
Trigger Price Question? Here's Who to Call, Mar 13 p 14
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Trigger Prices May be Steelmakers' Only Hope, Jan 23 p 12
Trigger Prices on Firing Line, by K. W. Bennett, May 29 p 25
Trigger Prices Score Bull's-Eye, Importers Say, Mar 6 p 61
Try Kumquats, Mar 27 p 42
We Now Have Two Ways to Watch Prices Rise, by Michael Marley, Mar 13 p 34
When Lead Price Will Drop is Anyone's Guess, Mar 27 p 78
Wholesale Prices Climb, Jan 30 p 25
Wholesale Prices Soar, May 22 p 36
Wholesale Youth Movement, Jan 9 p 21
Who to Believe? Why Not You? by Gene Beaudet, Apr 3 p 3
Why Carter Wanted Trigger, Not Quotas, Mar 20 p 13
Will New Trigger Prices Hike Steel Imports? May 22 p 11
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29
Zinc Prices Keep Sinking and Sinking, Mar 6 p 65

NICHOLAS PRINCIPE
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

PRIVATE SECTOR INITIATIVES, INC.
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

PROCESS COMPUTER SYSTEMS, INC.
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

PROCESS CONTROL
Bethlehem Unveils Marvel in Steel Technology, by K. W. Bennett, June 19 p MP-15

PROCESS CORP.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

PRODUCT LIABILITY
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 90
Finally - Official Word on Product Liability, Apr 17 p 11
Product Liability 'Mess' Keeps Getting Messier, Mar 13 p 16
Product Liability Plans Sprout on Capitol Hill, Apr 3 p 16
Tax Deduction Could Ease Product Liability Problem, May 29 p 14
What Product Liability is Doing to Larger Companies, by R. R. Irving, Mar 20 p 39

PRODUCTION
Costs, Prices Run Fast, But Productivity Walks, by J. D. Baxter, Apr 3 p 35
Output Keeps Scoring, June 5 p 36
Production Comes Alive, May 1 p 29
Productivity Drop Has Cost Nation $100 Billion, Jan 16 p 11
Productivity Slackens, Feb 13 p 31
Productivity Tumbles, May 15 p 36
Search is On to Improve Productivity, Feb 13 p 21
Small Consolation, Jan 30 p 25
This Comes as a Surprise? by Gene Beaudet, Mar 6 p 3
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24
Worth the Effort, Apr 3 p 39

PRODUCTS NEWSFRONT
A reader's guide to new products and free information on products advertised or mentioned in the issue.

PRODUCTO MACHINE CO.
Machine Tools to China Could Spark U. S. Economy, Mar 27 p 16

PROGRAMMING LANGUAGES
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

WILLIAM PROXMIRE
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18

PSYCHOLOGY
Please, Fellows, Cut Out the Hype, by Gene Beaudet, Feb 6 p 3

PULLMAN SWINDELL DIV.
Economies, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

PULTRUSION
Pultrusion: Composites' Road to Mass Production, by C. T. Post, Jan 30 p 27

PURCHASING
Capital Spending Prospects as Viewed by Purchasers, Jan 30 p 19
Consumers are Worried, May 1 p 29
Price Increases Continue Worry Purchasers, June 5 p 14
Shopping Sprees Ahead? Feb 6 p 49
Spenders Lose Again, Apr 17 p 34
Stockpile's Caretakers Plan to Go Shopping, Feb 6 p 14

Q

Q-BOP FURNACES
Republic Shows First "From Scratch" Q-BOP Furnaces, May 22 p 82

QUALITY CONTROL
The Big Decisions Behind Major Equipment Breakdowns, by J. J. Obrzut, Jan 16 p 47
Government-Industry System Waves the Flag on Defects, by R. R. Irving, Jan 16 p 54
QC Circles Spur Productivity, Improve Product Quality, by R. R. Irving, June 5 p 61
Quality Engineering Can be a Real Profit Center, by R. R. Irving, Apr 17 p 53
What It Takes to Get an N Stamp, by R. R. Irving, Jan 23 p 28

QUANEX CORP.
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15
Tubing Capacity Swells as Technology Expands, June 12 p 16
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25

QUEBEC
Separate Quebec a Fact, Says Cabinet Minister, May 8 p 18

QUEBEC CARTIER MINING CO.
Another Iron Ore Strike Comes to an End, June 26 p 56
Canada's Iron Ore Mines Crippled by Strikes, Apr 10 p 25

QUELLE-BASIC OXYGEN PROCESS
Republic Shows First "From Scratch" Q-BOP Furnaces, May 22 p 82

QUENCHING
New Coke Quench Data Jolts Steel Mills, by G. J. McManus, Jan 30 p MP-5

WILLIAM QUINN
Robot Ends Worker Fatigue in Hot PM Forging, Jan 23 p 32

R

RADIOGRAPHY
Consumer-Demands Change NDT Practice, Jan 30 p 32
High Technology Erupts on the NDT Scene, by R. R. Irving, May 15 p 39

RAILROADS
Carter's Coal Plan Needs $10 Billion Rail Investment, Apr 17 p 15
ICC Approves Boost in Rail Freight Rates, June 19 p 14
Rail Practices are Off Track, House is Told, Apr 10 p 23

WALLY RANKIN
They Designed a Vehicle to Curb Coke Emissions, by G. A. Weimer, Mar 27 p MP-22

RARITAN RIVER STEEL CO.
From Morgan to Raritan: A High-Speed Rod Mill, Mar 27 p MP-36
'Now's a Great Time to Build Steel Mills', Mar 27 p MP-3

ROBERT RAY
Aircraft Makers Prepare for Smooth Take-off, by B. H. LeCerf, June 12 p 32

RAYMOND ENGINEERING INC.
Electronics Helps Fastening Move from Art to Science, by R. R. Irving, June 26 p 32

RAYTHEON CO.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

RECLASOURCE CORP.
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

RECREATIONAL VEHICLES
Leisure Vehicles Sales are Out of the Woods, May 1 p 11

RECYCLING SYSTEMS
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27
Recyclers Can Help When Copper Runs Low, Mar 27 p 79
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11
Total Aluminum Recycling System Aids Steelmakers, by G. A. Weimer, June 19 p MP-23

REFRACTORY METALS
Coal Gasification: Steel's Toughest Environment Yet, by R. R. Irving, Mar 6 p 35

ROGER REGELBRUGGE
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51

REGIE NATIONALE DES USINES RENAULT
AMC and Renault to Join Forces, Apr 10 p 23

GEORGE P. REINJES CO.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

RELIABILITY
The Big Decisions Behind Major Equipment Breakdowns, by J. J. Obrzut, Jan 16 p 47

RELIANCE STEEL & ALUMINUM CO.
Japanese Don't Want to War over Trigger Prices, Mar 6 p 12
Service Center Designed for Fast Service, by C. T. Post, Mar 20 p 46
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

RENAULT
AMC and Renault to Join Forces, Apr 10 p 23

WILLIAM RENNER
Aluminum Users Stay Happy as Clams, Mar 6 p 61

REPLEX INTERNATIONAL, INC.
Pultrusion: Composites' Road to Mass Production, by C. T. Post, Jan 30 p 27

REPUBLIC STEEL CORP.
Add a Conditioning Plant to Republic's List, May 22 p MP-6
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25
Republic Shows First "From Scratch" Q-BOP Furnaces, May 22 p 82
Republic's Cleanup Turns into a Buildup, Mar 27 p 11
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Steelmakers Stretch to Overcome Coal Strike, Mar 20 p 9
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25

RESEARCH AND DEVELOPMENT
Don't Short Change R & D Spending - It Pays Off, Feb 27 p 16
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18
Let's Jack Up Spending for R & D - Fast! June 5 p 29
R & D A Matter of Survival? You Bet! by Gene Beaudet, Jan 30 p 3
Real Growth Absent in '78 R & D Spending, Jan 16 p 12
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15

RESINS
Add Carbon Black to Plastic for Direct Plateability, by J. J. Obrzut, Jan 30 p 30

RETAIL INDUSTRY
Humbugs Slow December Sales, Jan 23 p 25
Sales Voted Down, June 26 p 31
Shopping Sprees Ahead? Feb 6 p 49
Slow Sale at Retail, Apr 3 p 39

REUSABLE MATERIALS
Slag, Fines and Fume - Steel's New Raw Material, by G. J. McManus and G. A. Weimer, May 22 p MP-15

HENRY REUSS
Eximbank on Course for 5-Year Extension, May 15 p 16

REVERE COPPER & BRASS, INC.
Aluminum Producers Scramble to Add Capacity, Mar 13 p 89

REX PRECISION PRODUCTS CO.
Aircraft Makers Prepare for Smooth Take-off, by B. H. LeCerf, June 12 p 32

REXNORD, INC.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31
Metalworking Racks Up Record Sales and Profits, Feb 13 p 21
Metalworking's Winners in Financial Reporting, Mar 13 p 28

DAVID P. REYNOLDS
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
What's New for Aluminum in '78, by R. J. Regan, Jan 16 p 22

REYNOLDS METALS CO.
Aluminum Makers Up Output; Alcoa Ups Can Sheet Price, Jan 23 p 41
Aluminum Producers Waste No Time in '78, Jan 30 p 41
Aluminum Auto Market Race Speeds Up, Mar 13 p 91
Aluminum Users Stay Happy as Clams, Mar 6 p 61
Can Sheet Keeps Aluminum Rolling, May 29 p 54
Carribean Bauxite Loses Ground in U. S. Markets, by R. J. Regan, Mar 6 p 30
Car Bodies Fatten Aluminum Shipments, May 15 p 17
Reynolds Orders Three "New Generation" Casters, Mar 20 p 62
Steel Hit Bottom in '77; Nonferrous Up and Down,by G. J. McManus and R. J. Regan, Feb 13 p 27
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
What's New for Aluminum in '78, by R. J. Regan, Jan 16 p 22

JOHN RICCARDO
Chrysler Has Record Loss; GM a Strong First Quarter, May 8 p 15

F. D. RICHARDS
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29

GILBERT F. RICHARDS
Tell Congress What You Want, Businessmen Urged, June 5 p 15

ELLIOT RICHARDSON
Is there Really Progress on Law-of-the-Sea? June 5 p 15
Prospects Dim for Sea Accord, Richardson Says, Feb 13 p 65

WAYNE S. RIFKER
QC Circles Spur Productivity, Improve Product Quality, by R. R. Irving, June 5 p 61

WILLIAM RIFFE
The New Campus Radicals Work for Steel Companies, by G. A Weimer, Apr 10 p 58

LEONARD RIFKIN
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

RIGIDIZED CONTAINER SHEET
Pricing Rigidized Aluminum Sheet for Financial Performance, June 19 p 46

JAMES RIMMER
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

PIERRE RINFRET
If This Be Unpatriotic . . . Then I'll Eat My Hat, by Gene Beaudet, June 12 p 3

EDWARD W. RINKA
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

RISK MANAGEMENT, INC.
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

J. B. RITCH, JR.
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39

CHARLES RIVER ASSOCIATES
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

H. D. ROACH
Increased Filtering R & D Screens Out Snags, Apr 24 p MP-3

JOE ROBERSON
Alumax is Expanding from Coast-to-Coast, Mar 27 p 78

CLYDE ROBERTS
Fastener Makers Defy Administration on Imports, by G. A. Weimer, June 5 p 31

ROBERTS CORP.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

ROBERTSHAW CONTROLS CO.
Financial Men Tell What's Holding Economy Back, Feb 6 p 35

NORMAN ROBERTSON
Count on Short-Term Interest Rates to Rise, Mar 27 p27

R. A. ROBINSON
Service Centers Expect to Ship 10 Pct More in '78, May 22 p 13

MURRAY J. ROBLIN
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

ROBLIN STEEL CO.
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

ROBLIN STEEL CO.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

ROBOTS
GM's PUMA Robot Tackles Assembly Line Chores, June 5 p 12
NC-CAD CIM Report, by J. B. Pond, June 5 p 45
Robot Ends Worker Fatigue in Hot PM Forging, Jan 23 p 32

W. F. ROCHES
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

ROCHESTER INSTITUTE OF TECHNOLOGY
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

ROCKCOR, INC.
Chemical Heat Pump is Another Energy-Saver, June 12 p 46

W. F. ROCKWELL, JR.
Social Issues Steal Show at Rockwell Annual Confab, Feb 27 p 11

ROCKWELL INTERNATIONAL CORP.
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44
Electronics Helps Fastening Move from Art to Science, by R. R. Irving, June 26 p 32
Futuristic Combat Planes, Apr 10 p 105
Social Issues Steal Show at Rockwell Annual Confab, Feb 27 p 11
Valvemakers Switch to Plasma Hardfacing, Mar 6 p 43
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

ROD MILLS
From Morgan to Raritan: A High-Speed Rod Mill, Mar 27 p MP-36

ROD WIRE
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51

D. M. RODERICK
Business Raises Voice Against Carter's Proposals, Mar 20 p 12
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G.J. McManus and R. J. Regan, May 15 p 32
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

WILLIAM R. ROESCH
Roesch Finds His Niche at U. S. Steel, Feb 20 p 16

ROHR INDUSTRIES, INC.
Adhesives Poised to Steal More of Joining Market, by J. J. Obrzut, Apr 24 p 46

JOSEPH ROKOP
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

ROKOP ENGINEERING CORP.
Continuous Casting Molds Steelmaking Efficiency, by G. J McManus, Apr 24 p MP-15

KEMPTON H. ROLL
Metal Powders Enjoy Peaceful Growth, May 15 p 58

ROLLING
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15

PAUL E. ROMAN
Short-Handed Appliance Team Keeps Winning, Mar 13 p 15

C. R. RONAN
Adhesives Poised to Steal More of Joining Market, by J. J. Obrzut, Apr 24 p 46

ROBERT H. RORK
Bearing Down in the Right Place, by Gene Beaudet, Mar 20 p 3

NATE ROSE
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

ARTHUR H. ROSENBLOOM
Metalworking's Merger Fever Hits New High, by P. J. Cathey, June 12 p 23

LOUIS ROSENBLUM
Battery Breakthrough Recharges Electric Auto, by G. A. Weimer, Apr 24 p 32
Breakthrough Recharges Electric Car's Future, Mar 27 p 16

LOUIS R. ROSS
Search is On to Improve Productivity, Feb 13 p 21

ROSSBOROUGH MFG. CO.
Magnesium Helps Steel Get the Sulfur Out, May 22 p MP-19

ROTARY ENGINES
Rotary Engine Proves Superior, Reliable Driver, June 19 p 63
What's Bringing Rotaries Back? by G. A. Weimer, May 8 p 31

L. F. ROTHSCHILD, UNTERBERRY AND TOBIN CO.
War and Peace Study Plots Aluminum's Future, by F. W. Bowers, May 1 p 30

ROTOR BLADES
Army Gets High on Fiberglass Blades, June 26 p 39

C. R. ROUGH
Bethlehem Unveils Marvel in Steel Technology, by K. W. Bennett, June 19 p MP-15

ROBERT D. ROWAN
1st Quarter Leads Convoy to a Good Truckin' Year, June 12 p 18

F.W. ROWE
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

THOMAS R. RUDEL
Finally- Official Word on Product Liability, Apr 17 p 11

KARL RUDOLPH
It's Getting Harder to Get Power to the People, by G. J. McManus, Mar 6 p 26

E. H. RUDOY
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

J. H. RUMBARGER
Core Crushing: A Problem in Big Bearing Design, by G. A. Weimer, June 5 p 70

RUSSELL, BURDSALL & WARD
Fastener Lobbyists are Working Overtime, May 1 p 9
Fastener Makers Defy Administration on Imports, by G. A. Weimer, June 5 p 31

JOSEPH T. RYERSON & SON, INC.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

S

SKF INDUSTRIES, INC.
Labor Leaders, Manager Break Bread Together, June 12 p 14

SPS TECHNOLOGIES
Aircraft Makers Prepare for Smooth Take-off, by B. H. LeCerf, June 12 p 32
Fastener Makers Defy Administration on Imports, by G. A. Weimer, June 5 p 31
Why British Leyland is Sold on Electronic Bolt Tightening, by R. R. Irving, June 12 p 44

SPC SHIPPING, INC.
Tanker Carries One Day's Output of Alaskan Oil, Jan 9 p 12

SADOFF IRON & METAL CO.
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

SAFETY
The Big Decisions Behind Major Equipment Breakdowns, by J. J. Obrzut, Jan 16 p 47
OSHA's Carcinogen Rules too Expensive, Study Says, Apr 10 p 18
A Safe Foundry is Hard to Produce, Apr 24 p MP-3
Supreme Court's Deciding if OSHA Can Barge Ahead, Jan 23 p 13
This Comes as a Surprise? by Gene Beaudet, Mar 6 p 3
What It Takes to Get an N Stamp, by R. R. Irving, Jan 23 p 28

SAGINAW STEERING GEAR DIV.
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

J. E. SAGUE
Core Crushing: A Problem in Big Bearing Design, by G. A. Weimer, June 5 p 70

ST. JOE MINERALS CORP.
Lead Industry Will Ride Along with Battery Market, Feb 13 p 63
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
When Lead Price Will Drop is Anyone's Guess, Mar 27 p 78
Zinc Imports Blamed for St. Joe Layoffs, Mar 13 p 91
Zinc Prices Keep Sinking and Sinking, Mar 6 p 65

ST. JOE ZINC CO.
Don't Let Zinc Prices Fall to the Bottom, ITC Told, Mar 20 p 61
Snubbed by ITC, Zinc Turns Up Its Price, June 19 p 87
Zinc Imports Blamed for St. Joe Layoffs, Mar 13 p 91
Zinc Imports Drop, But Shipments Still Lag, May 29 p 50

ST. PAUL FIRE & MARINE INSURANCE CO.
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

SALARIES
Business Execs Underpaid- Says A-T-O's Figgie, May 29 p 15
Costs, Prices Run Fast But Productivity Walks, by J. D. Baxter, Apr 3 p 35
Financial Execs Worry More, Get Paid More, Feb 20 p 21
Top Executives Received 12 Pct Pay Boost in '77, June 19 p 12

LEWIS SALTON
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

SALTON, INC.
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

ROBERT R. SALYARD
Fastener Makers Won't Abandon Import Fight, May 8 p 11

S.G. SAMPATH
Cables and Structures Share Research Spotlight, May 29 p 44

HOWARD SAMUEL
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

SANDIA LABORATORIES
Coal Gasification: Steel's Toughest Environment, by R. R. Irving, Mar 6 p 35

JAMES SANTINI
Mining Interests Don't Like to Be Kept Waiting, June 19 p 89

ARTHUR J. SANTRY, JR.
Power Demand Expected to Double by 1990, Apr 10 p 25

SANYO SPECIAL STEEL CO., LTD.
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
Atlas Turns to Sanyo for Electric Furnace Info, Mar 27 p 75

SAUDI ARABIA
Iceberg Transport Could Open New Industry, by D. A. Van Cleave, Feb 27 p 31

PHILIP SAUEREISEN
When DISC Dies, So Will the Good That it's Done, by K. W. Bennett, Feb 6 p 37

HENRY A. SCHAAF
ECD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 59

ADOLPH O. SCHAEFER
Coal Gasification: Steel's Toughest Environment Yet, by R. R. Irving, Mar 6 p 35

JOSEPH S. SCHAPIRO
Scrap Industry Puzzled by Customers' Attitudes, Jan 30 p 41

HARRY SCHEIN
ECD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 59

PETER SCHMIDT
NC-CAD CIM Report, by J. B. Pond, Mar 13 p 45

CHARLES SCHMITT
Economics, Technical Gains Power Electric, Furnace Use, by G. J. McManus, Feb 27 p MP-13

TONI SCHMUEKER
Will the Japanese Follow VW to the United States? May 1 p 13

GERALD L. SCHNEBERGER
How the Auto Industry Selects Adhesives, Apr 10 p 106

P. E. SCHNEIDER
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25

NORMAN SCHOENFELD
Industry Wants Tighter Buy-American Rules, Apr 3 p 14

RICHARD SCHOENENBERGER
Is Recycling Metalworking's Next Cinderella? by K. W. Bennett, Apr 3 p 27

RICHARD M. SCHRECK
Driving Market Forces Keep Diesels Going, by G. A. Weimer, June 26 p 21

D. L. SCHROEDER
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

ROBERT SCHROEDER
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

KENNETH SCHULER
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

CHARLES L. SCHULTZE
"Renewal of Inflationary Pressures Would be a Painful Reappraisal", Mar 13 p 41
Schultze Says Tax Plan Will Help Business, May 15 p 13
Will Federal Borrowing Bring On Credit Crunch? Mar 6 p 19

ROBERT SCHUMO
Founders Cast Lines for Government Understandings, Mar 6 p 10
OSHA Must Have Warrants, But Nothing Has Changed, June 5 p 11

ARNOLD SCHWARZENEGGER
Service Centers Display New-Found Strength, June 12 p 59

SCIAKY BROS., INC.
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

SCIENCE AND TECHNOLOGY
Don't Short Change R & D Spending - It Pays Off, Feb 27 p 16
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18
Let's Jack Up Spending for R & D - Fast! June 5 p 29
R & D A Matter of Survival? You Bet! by Gene Beaudet, Jan 30 p 3
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15

SCIENTISTS
Job-Seekers Left Cold; Technical Demand Up, Mar 13 p 14
Technical Demand is Off and Running, Apr 17 p 16
Technical Job Market Declines in November, Feb 6 p 14

RICHARD SCOFIELD
Aircraft Makers Prepare for Smooth Take-off, by B. H. LeCerf, June 12 p 32

RICHARD SCOTT-RAM
Count on Short-Term Interest Rates to Rise, Mar 27 p 27

SAMUEL K. SCOVIL
Iron Ore Outlook Begins to Brighten, May 22 p MP-3

SCRAP
Annual Statistical Review, Jan 2 p 93
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27
Koreans Buy Most Scrap from U. S.; Japan Second, Jan 9 p 39
NARI, Bureau of Mines Sign Mutual Aid Accord, June 19 p 18
Scrap Aluminum Pressed into Metalworking Service, June 26 p 40
Scrap Composites Have Climbed Since November, Mar 13 p 93
Scrap Industry Puzzled by Customers' Attitudes, Jan 30 p 41
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11
Scrap Price Averages Dipped a Bit in May, June 12 p 61
Scrap Prices Begin to Level Off, May 8 p 95
Search for Cast Scrap Knows No Boundaries, Apr 24 p 68
Total Aluminum Recycling System Aids Steelmakers, by G. A. Weimer, June 19 p MP-23

SCRAP CORP. OF AMERICA
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

SCRAP IRON AND STEEL INSTITUTE
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

SCREW MACHINES
NC-CAD CIM Report, by J. B. Pond, Apr 10 p 115

WILLIAM R. SEARS
McKee Builds Its Personnel the Way It Builds Industry, by G. A. Weimer, Apr 3 p 32

SECURITIES
Anti-TPM Stance Drops Kaiser's Stock 3 Points, May 8 p 14

SECURITIES EXCHANGE COMMISSION
Financial Reports Conceal the Capital Shortfall, Jan 9 p 15

P. G. SEDER
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

SELAS CORP. OF AMERICA
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9

SENSORS
Missile Chill Factor Warms Hughes Engineers, June 26 p 39
Optical Sensors Impact Coil Handling System, Mar 27 p MP-42

SERVCO DIV.
Chip Resistance from Semi-Cobalt Coating, Mar 27 p MP-36

SERVICE CENTERS
Aluminum Distributors Top Producers in Shipments, Jan 16 p 71
Aluminum Service Centers Stay Ahead of Producers, June 19 p 95
Service Centers Buying More Domestic Steel, Jan 30 p 13
Service Centers Designed for Fast Service, by C. I. Post, Mar 20 p 46
Service Centers Display New-Found Strength, June 12 p 59
Service Centers Expect to Ship 10 Pct More in '78, May 22 p 13
Service Centers Get Busy at Both Ends, May 8 p 91
Service Centers Get Stuck in Year's First Months, Mar 13 p 93
Service Centers - a Good '77, Prospects of Better '78, Feb 6 p 89
Steel Summary: Centers are Ready to Serve, Mar 13 p 89
Steel Service Centers Prepare for the Best, Apr 17 p 81
Steel Summary: Room Enough for Two? May 22 p 104
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

SGI PIPING SYSTEMS DIV.
Save on Installed Cost of Pressure Piping, Feb 13 p 54

SERVO DRIVES
NC-CAD/CIM Report, by J. B. Pond, June 5 p 45

SERVOMECHANISMS
NC-CAD/CIM Report, by J. B. Pond, June 5 p 45

ERIC SEVAREID
So, Color me Predictable, by Gene Beaudet, Jan 9 p 3

ROBERT SEXTON
Service Centers Expect to Ship 10 Pct More in '78, May 22 p 13
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

SHALCO SYSTEMS DIV.
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

IRVING SHAPIRO
Business Council Sees Slower Growth, June 12 p 17

MILTON J. SHAPP
Will the Japanese Follow VW to the United States? May 1 p 13

SHEET AND STRIP
Alumax is Expanding from Coast-to-Coast, Mar 27 p 78
Getting Super Clean Sheet is Steel's New Goal, by G J. McManus, Mar 27 p MP-9
Look for Steel Sheet Price Hike About Aug. 1, June 12 p 13
More Aluminum Products Get a Price Boost, Feb 27 p 39
Steel Service Centers Prepare for the Best, Apr 17 p 81
Steel Summary: Orders Up, But It's Hard to Say Why, Feb 27 p 39

LEON SHELTON
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26

JOHN H. SHENEFIELD
'Shared Monopoly' Issue Survives, Despite Steel's Problems, Feb 6 p 39

MARK SHEPHERD, JR.
Don't Short Change R & D Spending - It Pays Off, Feb 27 p 16

A. M. SHERMAN
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29

JACK B. SHERMAN
Tool and Die Industry Told to Boost Investments, Mar 6 p 11

W. J. SHIELDS
'Now's a Great Time to Build Steel Mills', Mar 27 p MP-3

SHIPBUILDING
Pickands Mather to Add Third Self-Unloading Ship, Apr 24 p MP-6

SHIPS
Tanker Carries One Day's Output of Alaskan Oil, Jan 9 p 12

GEORGE A. SHIRK
Construction Runs On, May 15 p 36

JULIUS SHISKIN
Fewer Idle Hands, Mar 27 p 42
Hard Act to Follow, Feb 20 p 34
Labor Does the Job, Jan 23 p 25
We Now Have Two Ways to Watch Prices Rise, by Michael Marley, Mar 13 p 34

GEORGE P. SHULTZ
A Close Encounter of the Eye-Opening Kind, Apr 24 p 29

SIDBEC-DOSCO, LTD.
Canada's Iron Ore Mines Crippled by Strikes, Apr 10 p 25

SIDBEE-NORMINES, INC.
Canada's Iron Ore Mines Crippled by Strikes, Apr 10 p 25

RICHARD SIEMSEN
When DISC Dies, So Will the Good That it's Done, by K. W. Bennett, Feb 6 p 37

SIGMA MACHINERY INC.
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

SIGNODE CORP.
Why Signode is Committed to International Trade, June 26 p 19

WILLIAM J. SILBER
When a Dollar Floats, Will Interest Rates Sink? Apr 24 p 25

SILVER
Silver Flies High Because Dollars Sink, Mar 20 p 62
Silver Use Drops, But Its Price Won't Budge, Apr 10 p 159
Silver Users Look for More of the Same, Feb 6 p 91
Silver Users Get What They Expected, June 26 p 54

SILVER USERS ASSN.
Silver Users Get What They Expected, June 26 p 54
Silver Users Look for More of the Same, Feb 6 p 91

R. P. SIMMONS
Import Quotas on Specialty Steel Will Stay, Jan 30 p 14
Industry Wants Tighter Buy-American Rules, Apr 3 p 14
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59
Power Drain Threatens Thousands of Jobs, Feb 20 p 65
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

MARVIN SIMON
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

ERIC SINGER
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

SINTERED METALS, INC.
PM Triggers Vital Savings for Gun Parts, June 19 p 63

E. ELMER SIVACEK
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20

LARRY SKODIS
EB Curing Foils High Cost of Material Coating, Mar 13 p 63

M. J. SKUBON
Foundry Equipment Makers Remold Their '78 Outlook, by K. W. Bennett, May 22 p 31

SLABS
Steelmakers Work Their Way Around Slab Reheating, by G. J McManus, June 19 p MP-9

SLAG
Slag, Fines and Fume - Steel's New Raw Material, by G. J. McManus and G. A. Weimer, May 22 p MP-15

CHARLES SLATER
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59

COURTENAY SLATER
Humbugs Slow December Sales, Jan 23 p 25
Indicators Go 10-2, Feb 20 p 34
Indicators Run Late, Apr 17 p 34
Price Increases Slow, Feb 6 p 49

J. T. SLOCOMB, CO.
ECD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 59

SLOT FORGE FURNACES
Slot Forge Furnace Design Fuels Energy-Savings, June 19 p 63

THOMAS SMALL
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58

SMALL CARS
New Smaller Autos Make Big Use of SMC Plastic, Feb 27 p 13
Small Car Design Will Change Tooling Market, Feb 20 p 12

SMELTING
Alcan Plans to Be a Smart Shopper, Apr 3 p 63
Aluminum Smelter Glut Puts Pressure on Price, Feb 20 p 65
Clean Won't Come Cheap for Copper, Study Says, Mar 20 p 62
The Sky Is Falling on Copper Producers, by E. W. Bowers, Mar 27 p 39
World Aluminum Smelters Stay Red-Hot in Winter, Apr 10 p 159

A. O. SMITH CORP.
Entry-Level Computers Attract Manufacturing, by A. M. Greene, May 1 p 42
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

CHARLES SMITH
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

CRAIG R. SMITH
Machine Tool Orders Up Sharply in First Quarter, May 1 p 9

GEORGE SMITH
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

S. O. SMITH
Search for Oil Helps Fleast Strike It Rich, Jan 30 p MP-2

WILLIAM SNEATH
Wage and Price Controls are Set to Bloom, Apr 10 p 49

JOHN SNOW
Dual Lube System Cuts Machine Downtime, Apr 17 p 59

SOCIAL SECURITY
The Message You Didn't Get, by Gene Beaudet, May 1 p 3

SOCIAL WORKERS
Will Social Workers Become a Contract Item? May 29 p 14

SOCIETE NATIONALE INDUSTRIELLE AEROSPATIALES
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

SOCIETY OF AUTOMOTIVE ENGINEERS
Aluminum Shows Auto Market Proof of Weldability, May 1 p 46
Water Emulsions Won't Be a 'Tiger' in Your Tank, May 15 p 43

SOCIETY OF MANUFACTURING ENGINEERS
Double Your Output by High-Speed Broaching, by J. J. Obrzut, June 5 p 67

SOCIETY OF NONDESTRUCTIVE TESTING
What It Takes to Get an N Stamp, by R. R. Irving, Jan 23 p 28

SOCIOLOGY
Is the 'Me' Generation to Blame? by Gene Beaudet, Apr 17 p 3
Mind Your Own Business, Please, by Gene Beaudet, Feb 20 p 3
Social Issue Steal Show at Rockwell Annual Confab, Feb 27 p 11

SOLAR TURBINE INTERNATIONAL, INC.
QC Circles Spur Productivity, Improve Product Quality, by R. R. Irving, June 5 p 61

ANTHONY M. SOLOMON
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

JAY SOLOMON
Stockpile's Caretakers Plan to Go Shopping, Feb 6 p 14

BILLIE J. SOMMER
Plate Fabricators: Deep in the Heart of Houston, by R. R. Irving, May 8 p 59

SONOBOND CORP.
Weld Costs Plummet with Ultrasonics, by D. A. Van Cleave, Apr 3 p 48

SONY CORP.
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

SOUTHERN CALIFORNIA EDISON CO.
It's Getting Harder to Get Power to the People, by G. J. McMa...us, Mar 6 p 26

SPACECRAFT
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

SPANG & CO.
Slag, Fines and Fume - Steel's New Raw Materials, by G. J. McManus and G. A. Weimer, May 22 p MP-15

SPECIALTY STEEL
Import Quotas on Specialty Steel Will Stay, Jan 30 p 14
Industry Wants Tighter Buy-American Rules, Apr 3 p 14
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59

STEWART SPECTOR
Aluminum Stocks Begins to Swell, Feb 13 p 65
War and Peace Study Plots Aluminum's Future, by E. W. Bowers, May 1 p 30

E. B. SPEER
Government's Regulatory Game is Dirty Pool, May 15 p 35
Just Where Do Trigger Prices Misfire? Feb 6 p 11
Look for Steel Sheet Price Hike About Aug. 1, June 12 p 13
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
Steelmakers are Bullish, But is '78 a China Shop? by G. J. McManus, June 5 p 40
Tentative Coal Accord to Get Close Look, Mar 6 p 9
Will New Trigger Prices Hike Steel Imports? May 22 p 11

SPERRY RAND CORP.
Entry-Level Computers Attract Manufacturing, by A. M. Greene, May 1 p 42
Let's Jack Up Spending for R & D - Fast! June 5 p 29

SPERRY UNIVAC DIV.
Entry-Level Computers Attract Manufacturing, by A. M. Greene, May 1 p 42
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

SPINNING
Metal Spinning for a Special Nose Job, Feb 27 p 33

DAVID SPOEHR
Fastener Makers Defy Administration on Imports, by G. A. Weimer, June 5 p 31

BAILEY H. SQUIER
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

ELMER STAATS
Chrysler Tank Subcontract Causes Concern, by E. W. Bowers, Apr 17 p 30

STAINLESS PROCESSING, INC.
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

STAINLESS STEEL
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59
New Family Adopts E-Brite Stainless, by D. A. Van Cleave, Mar 27 p 47
Producers React Slowly to A-L's Stainless Hike, May 22 p 107
Save on Installed Cost of Pressure Piping, Feb 13 p 54
Stainless and Alloy Tool Shipments are Up, May 29 p 18
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

STAMPINGS
Making a Big Impression on Stamping Technology, May 15 p 43
Metal Stamping Jobs Go Begging for People, May 22 p 13
"Warm Forming" Aluminum Extends Usage in Cars, Mar 20 p 42

STANDARD RESEARCH CONSULTANTS, INC.
Metalworking's Merger Fever Hits New High, by P. J. Cathey, June 12 p 23

STANDARD STEEL DIV.
Aircraft Makers Prepare for Smooth Take-off, by B. H. LeCerf, June 12 p 32

STANDARDS
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51
The Metric Boom Has a Faulty Legal Fuze, May 22 p 77
New Copper Standard Will Hit Copper Hard, May 15 p 20
Voluntary Standards: Everyone Wants In, by J. J. Obrzut, May 29 p 39

STANLEY WORKS
Metalworking Profits Have Surprising First Quarter, May 15 p 26

DONALD STANSBARGER
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

STATE GOVERNMENT
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65

STATISTICS
Annual Statistical Review, Jan 2 p 93

RALPH H. STEARNS
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

STEEL
Aluminum and Steel Tied in Can Market, June 26 p 15
Annual Statistical Review, Jan 2 p 93
Anti-TPM Stance Drops Kaiser's Stock 3 Points, May 8 p 14
Coal Gasification: Steel's Toughest Environment Yet, by R. R. Irving, Mar 6 p 35
Coil Coaters Seek a 'Perfect' Galvanized Steel, by J. J. Obrzut, May 1 p 37
Figures Do Lie, Japan Sources Say, Apr 24 p 63
From Japan Comes Hints for a Steel Quota Scheme, Mar 13 p 11
The Great Can Fight May Go the Distance, Mar 20 p 65
Inland Likes What it Sees Ahead, June 12 p 58
Japan's Steelmakers Still Dominate World Output, May 22 p MP-6
Just Where Do Trigger Prices Misfire? Feb 6 p 11
Look for Steel Sheet Price Hike About Aug. 1, June 12 p 13
Luxembourg Has Openings for Foreign Manufacturers, Feb 27 p MP-3
Magnesium Helps Steel Get the Sulfur Out, May 22 p MP-19
Plate Fabricators: Deep in the Heart of Houston, by R. R. Irving, May 8 p 59
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Service Centers Buying More Domestic Steel, Jan 30 p 13
Service Centers Get Busy at Both Ends, May 8 p 91
Service Centers Display New-Found Strength, June 12 p 59
Service Centers Get Stuck in Year's First Months, Mar 13 p 93
Slag, Fines and Fumes - Steel's New Raw Material, by G. J. McManus and G. A. Weimer, May 22 p MP-15
Some Thoughts About Cleaning Steel for Painting, by J. J. Obrzut, Mar 27 p 52
Steel Cost Feud Goes into Overtime, May 15 p 60
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Steel: '78 Rides on More Use, Fewer Imports, Jan 2 p 151
Steel Output Fell in '77; Shipments Rose Slightly, Feb 27 p 41
Steel Price Increases Garner Mixed Reviews, Apr 10 p 17
Steel Service Centers Prepare for the Best, Apr 17 p 81
Steel Summary: Centers are Ready to Serve, Mar 13 p 89
Steel Summary: Getting Some Answers, June 26 p 53
Steel Summary: March is Coming in Like a Lamb, Jan 23 p 39
Steel Summary: Not All Trigger Prices Hit Target, Feb 20 p 63
Steel Summary: Orders Up, But It's Hard to Say Why, Feb 27 p 39
Steel Summary: Price Hikes Ill-Timed? Jan 9 p 39
Steel Summary: Producers Can Name Their Price, Apr 10 p 155
Steel Summary: The Road to 100 Steepens, Apr 24 p 63
Steel Summary: Trigger Prices Fire Two Blanks, Jan 16 p 69
Steel Summary: Users are Buying a World of Steel, Apr 17 p 79
Steel Summary: Users are Paying the Price, Feb 6 p 89
Steel Summary: The View from Japan, Mar 20 p 61
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15
Steelmaker Fears Trigger Price Backfire, Feb 27 p MP-3
Trigger Prices Score Bull's-Eye, Importers Say, Mar 6 p 61
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Trigger Price Questions? Here's Who to Call, Mar 13 p 14
Tubing Design Proves Very Cool Blend, May 1 p 41
West Coast Imports Outpace Last Year, June 19 p 87
Who to Believe? Why Not You? by Gene Beaudet, Apr 3 p 3
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer, Jan 30 p 20
World Steel Spurted, then Spluttered, June 19 p MP-3
Will New Trigger Prices Hike Steel Imports? May 22 p 11
World's Steel Output Dipped Slightly in '77, Feb 27 p MP-3

JOHN STEEL
Aluminum Auto Market Race Speeds Up, Mar 13 p 91
Car Bodies Fatten Aluminum Shipments, May 15 p 17

STEELCASE, INC.
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

STEEL FELLOWS PROGRAM (AISI)
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58

STEEL INDUSTRY
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25
"And After All We've Done for You", by Gene Beaudet, Apr 24 p 3
The Big Gun Behind Trigger Prices, by Tom Dulaney, Mar 6 p 21
Business Raises Voice Against Carter's Proposals, Mar 20 p 12
Free Trade is a Myth in the World Steel Market, Apr 17 p 32
From Japan Comes Hints for a Steel Quota Scheme, Mar 13 p 11
Industry Wants Tighter Buy-American Rules, Apr 3 p 14
Japan Ponders 10-Point Trade Pact with U. S., Jan 23 p 14
Japan Wins Another Battle, But Not the War, May 22 p 107
Japanese Don't Want to War over Trigger Prices, Mar 6 p 12
Loan Guarantee Program for Steel Unveiled, Apr 3 p 9
Metalworking Boosts Returns on Sales and Assets, by J. D. Baxter, May 22 p 39
Metalworking 1978 as Seen by 100 Analysts, by J. D. Baxter, Feb 20 p 25
Metalworking Merger Fever Hits New High, by P. J. Cathey, June 12 p 23
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58
OK, Call the Cops . . . But on Whom? by Gene Beaudet, May 15 p 3
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51
Revised Trigger Prices Give Cause for Study, May 15 p 19
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
'Shared Monopoly' Issue Survives, Despite Steel's Problems, Feb 6 p 39
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
Steel Companies are Ready to Make their Move, Apr 17 p 79
Steel and Copper Workers Eligible for Job Assistance, Apr 3 p 15
Steel Hit Bottom in '77; Nonferrous Had Mixed Year, by P. J. Cathey and R. J. Regan, Apr 24 p 35
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Steel: '78 Rides on More Use, Fewer Imports, Jan 2 p 151
Steel Put Record Amount into Pollution Control in '77, May 1 p 11
Steel Seeks Compromise on Air Pollution Rules, June 26 p 14
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
Steel Summary: Boom, or Just Noise? Mar 27 p 73
Steel Summary: Bridging the Gap? June 5 p 92
Steel Summary: Building Up Steam, June 19 p 87
Steel Summary: Cold, Strike Squeeze Supply, Feb 13 p 63
Steel Summary: How Much is 100%? May 29 p 49
Steel Summary: March is Coming in Like a Lamb, Jan 23 p 39
Steel Summary: Not All Trigger Prices Hit Target, Feb 20 p 63
Steel Summary: The Numbers Game, June 12 p 57
Steel Summary: Orders Up, But It's Hard to Say Why, Feb 27 p 39
Steel Summary: Producers Can Name Their Price, Apr 10 p 155
Steel Summary: Room Enough for Two? May 22 p 104
Steel Summary: Trigger Prices Fire Two Blanks, Jan 16 p 69
Steel Summary: Triggers Come Under Fire, May 8 p 87
Steel Summary: Triggers Spur Duels for Demand, Apr 3 p 61
Steel Summary: Users Are Buying a World of Steel, Apr 17 p 79
Steel Summary: What's Beyond the June Horizon? May 1 p 53
Steel Summary: Will Users Keep Giving Orders? Mar 6 p 61
Steel Summary: Year Starts with a Bang, Jan 30 p 29
Steelmakers Stretch to Overcome Coal Strike, Mar 20 p 9
Steel's Summary: Summer Could Be Hot, May 15 p 57
Steel's World Troubled, Distributors are Told, June 12 p 13
Steelmakers are Bullish, But is '78 a China Shop? by G. J. McManus, June 5 p 40
Thoughts Triggered by Reference Prices, by Gene Beaudet, Jan 16 p 3
Trigger Price Mechanism Gets Some Close Analysis, Feb 13 p 11
Trigger Price Questions? Here's Who to Call, Mar 13 p 14
Trigger Prices on Firing Line, by K. W. Bennett, May 29 p 25
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Trigger Price May be Steelmakers' Only Hope, Jan 23 p 12
Trigger Prices Score Bull's-Eye, Importers Say, Mar 6 p 61
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29

STEELMAKING
Armco Comes Back to Direct Reduction Market, Jan 30 p MP-1
Bethlehem Unveils Marvel in Steel Technology, by K. W. Bennett, June 19 p MP-15
Computer Prophecies Keep Laclede on Track, Apr 24 p MP-20
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9
How Centralized Control Effects Energy Savings, Feb 27 p MP-27
Ingot Stool Insert Popular with Japanese Steelmakers, Mar 27 p MP-3
Japan Phases Out Last Open Hearths, Jan 30 p MP-1
New Coke Quench Data Jolts Steel Mills, by G. J. McManus, Jan 30 p MP-5
Two Japanese Steelmakers Claim World Records, Jan 30 p MP-2
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9
Total Aluminum Recycling System Aids Steelmakers, by G. A. Weimer, June 19 p MP-23
Will Plasma Steelmaking Replace the Electric Furnace? Apr 24 p MP-29

STEEL MILLS
Bethlehem Unveils Marvel in Steel Technology, by K. W. Bennett, June 19 p MP-15
Metalworking 1978 as Seen by 100 Analysts, by J. D. Baxter, Feb 20 p 25
Steel Output Fell in '77; Shipments Rose Slightly, Feb 27 p 41
'Now's a Great Time to Build Steel Mills', Mar 27 p MP-3
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15

STEEL PLATE FABRICATORS' ASSN.
Plate Fabricators: Deep in the Heart of Houston, by R. R. Irving, May 8 p 59

STEELMET, INC.
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

STEEL SERVICE CENTER INSTITUTE
Service Centers Buying More Domestic Steel, Jan 30 p 13
Service Centers Display New-Found Strength, June 12 p 59
Service Centers Expect to Ship 10 Pct More in '78, May 22 p 13
Service Centers Get Busy at Both Ends, May 8 p 91
Service Centers Get Stuck in Year's First Months, Mar 13 p 93
Service Centers - a Good '77 - Prospects of Better '78, Feb 6 p 89
Steel Service Centers Prepare for the Best, Apr 17 p 81
Steel Summary: Centers are Ready to Serve, Mar 13 p 89
Trigger Prices Mechanism Gets Some Close Analysis, Feb 13 p 11
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

STEEL STRUCTURES PAINTING COUNCIL
Some Thoughts About Cleaning Steel for Painting, by J. J. Obrzut, Mar 27 p 52

STEINER-LIFF INDUSTRIES, INC.
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

WILLIAM STEIGER
Capital Gains Tax Draws Supporters, June 26 p 11

STEIGER TRACTOR, INC.
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

RICHARD C. STEINMETZ
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

JOHN STEPHENS
Chromium Substitutes Worth a Second Look, by B. H. LeCerf, May 29 p 42

E. W. STIMPSON
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

DONALD E. STINGEL
The New Eximbankers Foreclose on Apathy, by E. W. Bowers, Feb 13 p 22

GEORGE A. STINSON
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Steel: '78 Rides on More Use, Fewer Imports, Jan 2 p 151
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

SAMUEL STORCHEIM
Scrap Aluminum Pressed into Metalworking Service, June 26 p 40

LESLIE STORYK
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25

FRANK STRATMAN
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

ROBERT S. STRAUSS
Carter's Fasteners Decision May Not Hold Up, Feb 27 p 14
Fasteners Delegation Takes Case to D. C., Feb 6 p 15
Hearings May be Held on Fastener Import Relief, Mar 13 p 15
Japan Ponders 10-Point Trade Pact with U. S., Jan 23 p 14
Look for Conservative Stance in Trade Talks, Feb 27 p 13
Look for Steel Sheet Price Hike About Aug. 1, June 12 p 13
Now, Let's See What Happens, by Gene Beaudet, June 26 p 3
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

SIMON D. STRAUSS
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41
The Sky *Is* Falling on Copper Producers, by E. W. Bowers, Mar 27 p 39
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32

STRESS RELIEF ENGINEERING CO.
Vibratory Stress Relief: Black Magic or Cure-All? by R. R. Irving, Apr 17 p 56

STRUCTURAL DYNAMICS CORP.
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

STRUCTURAL DYNAMICS RESEARCH CORP.
Small Metal Fabricators Can Get NC Software, Mar 27 p 50

STRUCTURAL STEEL
Structural Fabricators Fear Trigger Ricochet, Feb 6 p 16
Steel Summary: Building Up Steam, June 19 p 87

STRUCTURES
Cables and Structures Share Research Spotlight, May 29 p 44
NDT Methods Combine to Tackle Stress, Apr 10 p 105

A. J. STUMPO
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9

HERBERT STURGES
Aircraft Makers Prepare for Smooth Takeoff, by B. H. LeCerf, June 12 p 32

JOHN D. SUDBURY
Coal Gasification: Steel Toughest Environment Yet, by R. R. Irving, Mar 6 p 35

JOHN M. SULLIVAN
Rail Practices are Off Track, House is Told, Apr 10 p 23

MICHAEL SUMICHRAST
Starts Come to a Stop, Mar 6 p 29

SUMITOMO METAL INDUSTRIES, LTD.
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29

SUMMIT INDUSTRIAL PRODUCTS CO.
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115

SUPERIOR COMPANIES, INC.
Scrap Industry's Top Grade - Process Technology, by K. W. Bennett, Jan 30 p MP-11

SUPERIOR IRON WORKS & SUPPLY CO.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

SURFACE DIV.
Making Success Out of Risk in a Crisis Marketplace, by G. A. Weimer, Jan 9 p 16

SURF TRAN CO.
ECD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 59

SURINAM
Carribean Bauxite Loses Ground in U. S. Market, by R. J. Regan, Mar 6 p 30

SANJAY SWARUP
ECD Fights the Costly Burr, by D. A. Van Cleave, Mar 13 p 45

T

TRW, INC.
Nothing is More Crucial than Knowing Real Costs, Jan 23 p 18
NC-CAD/CIM Report, by J. B. Pond, Feb 13 p 33
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45
What this Country Needs is an Investment Policy, May 15 p 16

HIROSHI TAKANO
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15
World Steel Trade: The View from Japan, by G. J. McManus, Mar 27 p 29

ALVIN K. TAKEMOTO
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45

KINKICHI TAKITA
Nissan Plans to Set Up Shop in U. S., May 15 p 16

ROBERT TALBOT
Construction's Next Build-Up Will Be Harder to See, by Joe Barks, May 29 p 28

TANKS (ORDNANCE)
Chrysler Tank Subcontract Causes Concern, by E. W. Bowers, Apr 17 p 30

W. R. TARBERT
Commercial Marketing of FMC's Formcoke Process, Feb 27 p MP-28

TARIFFS
AFL-CIO Comes Out Strong for Protectionism, Mar 6 p 11
Union Carbide, Domestic Ferrochrome Producers Clash, Jan 30 p 39
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

GEORGE TATEOSIAN
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41

TAXES
Auto Retooling is Aiding Machine Tool Orders, Jan 9 p 11
Business Raises Voice Against Carter's Proposals, Mar 20 p 12
Capital Gains Tax Cut Draws Supporters, June 26 p 11
Carter Links Tax Reforms to His $25 Billion Tax Cut, Jan 30 p 14
The Message You Didn't Get, by Gene Beaudet, May 1 p 3
Sales Voted Down, June 26 p 31
Schultze Says Tax Plan Will Help Business, May 15 p 13
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
Tax Deduction Could Ease Product Liability Problem, May 29 p 14
Ullman Hopes to Reduce Double Tax on Dividends, Feb 20 p 11
When DISC Dies, So Will the Good That it's Done, by K. W. Bennett, Feb 6 p 37
White House Opposes Capital Gains Tax Cut, May 29 p 13

JULIAN H. TAYLOR
Can Sheet Keeps Aluminum Rolling, May 29 p 54

TECHFRONT
Weekly digest of new technology- both in the U. S. and Overseas- processes, technology transfer and design featurettes.

TECHNICAL INFORMATION
Government-Industry System Waves the Flag on Defects, by R. R. Irving, Jan 16 p 54

TECHNOLOGY
GDR Technology Lands in U. S. with Some Fanfare, May 29 p 45
Incentive Lack Threatens U. S. High-Technology Lead, Mar 20 p 15
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15
Technologies, Not Products, to Get Export Controls, by E. W. Bowers, June 19 p 47

TECHNOLOGY TRANSFER
Battery Breakthrough Recharges Electric Auto, by G. A. Weimer, Apr 24 p 32
By Definition, There is Confusion, Apr 17 p 31
Government Rules Sought on Technology Transfers, Jan 9 p 13

TEKTRONIX, INC.
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

DELEB TELEKI
Spring Life Signs Point to Fall Farm Machine Harvest, by K. W. Bennett, May 1 p 32

TEMPLE, BARKER & SLOANE, INC.
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39

RICHARD L. TERRELL
Government Regs Cost GM $200 on Every Vehicle Sold, June 5 p 13

EMANNUAL TESCH
Luxembourg Has Openings for Foreign Manufacturers, Feb 27 p MP-3

TESTING & INSPECTION
Consumer-Demands Change NDT Practice, Jan 30 p 32
High Technology Erupts on the NDT Scene, by R. R. Irving, May 15 p 39
What It Takes to Get an N Stamp, by R. R. Irving, Jan 23 p 28

TEXAS INSTRUMENTS, INC.
Don't Short Change R & D Spending - It Pays Off, Feb 27 p 16

TEXASGULF INC.
Don't Hold Your Breath Where Zinc's Concerned, May 8 p 91

TEXTRON, INC.
NC-CAD/CIM Report, by J. B. Pond, Jan 16 p 35

THERMONETICS, INC.
Hunt for Energy Turns to Cow Pasture, Apr 3 p 15

HELMUT THIELSCH
What It Takes to Get an N Stamp, by R. R. Irving, Jan 23 p 28

WILLIAM THOMAS
New GE Plastic Aimed at Metal's Computer Market, Mar 13 p 16

3M CO.
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99
Government Hamstrings Private R & D, by K. W. Bennett, Feb 27 p 18
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37

JAMES W. THROOP
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

AUGUST THYSSEN-HUTTE AG
Metalworking's Merger Fever Hits New High, by P. J. Cathey, June 12 p 23

THYSSEN, INC.
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25

TIN
Tin Stockpile Release Plan Raises Questions, Feb 27 p 13

TIRES
'Elliptic' Tires OKd for Goodyear Production, June 12 p 16

TITANIUM
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53
Cold Compaction Broadens Market for Titanium PM, by G. A. Weimer, May 8 p 70

JOHN TITUS
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37

D. E. TODD
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13

TOKYO STEEL MFG. CO.
Japan Phases Out Last Open Hearths, Jan 30 p MP-1

ROBERT A. TOMISAK
Latest Graphics Systems Recast CAD/CAM Concepts, by J. B. Pond, June 12 p 37

AZUSA TOMIURA
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

TONGASS NATIONAL FOREST
Proposed Wilderness Area is Rich in Minerals, May 15 p 19

TOOL AND DIE INDUSTRY
Auto Redesign Should Help Tool & Die Sales, Jan 16 p 11
Small Car Design Will Change Tooling Market, Feb 20 p 12
Tool and Die Industry Told to Boost Investments, Mar 6 p 11
Tool and Die Orders May Increase 14 Pct, Apr 17 p 11

TOOL STEEL
Stainless and Alloy Tool Shipments are Up, May 29 p 18

PETER E. TOOMEY
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58

TORNGREN/SPINCRAFT DIV.
Metal Spinning for a Special Nose Job, Feb 27 p 33

E. F. TORRI
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

R. W. TOURCHIN
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

JOHN TOWERS
Recyclers Can Help When Copper Runs Low, Mar 27 p 79

TOWERS, PERRIN, FORSTER & CROSBY
Top Executives Received 12 Pct Pay Boost in '77, June 19 p 12

TRACY ARM-FORDS TERROR WILDERNESS
Proposed Wilderness Area is Rich in Minerals, May 15 p 19

TRADE ASSOCIATIONS
Trade Association Directory, Jan 2 p 109

TRAINING PROGRAMS
Ball Corp. Makes Certain Its Workers Understand, by C. T. Post, June 12 p 28
Don't Worry About Production; Watch Maintenance Costs, by K. W. Bennett, Jan 30 p 23
McKee Builds Its Personnel the Way It Builds Industry, by G. A. Weimer, Apr 3 p 32
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24

TRANSMARES CORP.
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

TRIGGER PRICES
See Also: Prices
Steel Summary: Getting Some Answers, June 26 p 53
Steel's World is Troubled, Distributors are Told, June 12 p 13
Trigger Price Crackdown Coming Up Soon, June 26 p 11
Trigger Prices on Firing Line, by K. W. Bennett, May 29 p 25

ALEXANDER B. TROWBRIDGE
Needed by the Board - An Audit Committee, Apr 10 p 49

TRUCKS
Driving Market Forces Keep Diesels Going, by G. A. Weimer, June 26 p 21
1st Quarter Leads Convoy to a Good Truckin' Year, June 12 p 18

W. M. TRUSKA, JR.
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

TUBE INVESTMENTS LTD.
Tube Investments Plan Cylinder Plant in Oklahoma, Apr 24 p 15

TUBE SERVICE CO.
Service Center Designed for Fast Service, by C. T. Post, Mar 20 p 46

TUBING
Copperweld Expects All Its Tubing to Score Tens, by G. A. Weimer, May 8 p 38
New Family Adopts E-Brite Stainless, by D. A. Van Cleave, Mar 27 p 47
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25
Tube Investment Plans Cylinder Plant in Oklahoma, Apr 24 p 15
Tubing Capacity Swells as Technology Expands, June 12 p 16
Tubing Design Proves Very Cool Blend, May 1 p 41

TUBULAR STEEL, INC.
Tubing Capacity Swells as Technology Expands, June 12 p 16

TUGS
Iceberg Transport Could Open New Industry, by D. A. Van Cleave, Feb 27 p 31

J. M. TULL METALS CO.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

C. A. TURNER
Getting Super Clean Sheet is Steel's New Goal, by G. J. McManus, Mar 27 p MP-9

JOSEPH TURNER, JR.
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25
Tubing Capacity Swells as Technology Expands, June 12 p 16

TURNING MACHINES
NC-CAD/CIM Report, by J. B. Pond, June 5 p 45

TURNKEY SYSTEMS
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

CLARK H. TYLER
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

U

UOP CORP.
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett, Apr 3 p 27

U. S. S. R.
Dimetrics Signs License for Soviet Technology, Apr 24 p 15
Competition is Killing Nickel, by R. J. Regan, May 15 p 29
Russia Needs to Import Machine Tools, Study Says, June 5 p 16

U. S. AIR FORCE MANUFACTURING TECHNOLOGY DIV.
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53

U. S. AIR FORCE MATERIALS LABORATORY
Advanced Materials Given Room to Fly in Aerospace, by B. H. LeCerf and A. M. Greene, June 19 p 53
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

U. S. ARMY ENGINEERING FLIGHT ACTIVITY
Army Gets High on Fiberglass Blades, June 26 p 39

U. S. ARMY MISSILE RESEARCH AND DEVELOPMENT COMMAND
Production Lines Impacted by Laser Device Manufacture, June 12 p 46

U. S. BUREAU OF THE CENSUS
Metalproducers Must Answer to Government, Jan 30 p MP-1

U. S. BUREAU OF LABOR STATISTICS
Coal Miners Went on Strike and Life Went On as Usual, Apr 3 p 12
Fewer Idle Hands, Mar 27 p 42
We Now Have Two Ways to Watch Prices Rise, by Michael Marley, Mar 13 p 34

U. S. BUREAU OF MINES
Coal Gasification: Steel's Toughest Environment, by R. R. Irving, Mar 6 p 35
Minerals Won't Get Hard to Come By, June 19 p MP-3
NARI, Bureau of Mines Sign Mutual Aid Accord, June 19 p 18
Proposed Wilderness Area is Rich in Minerals, May 15 p 19
Silver Use Drops, But Its Price Won't Budge, Apr 10 p 159
U. S. Metal Ore Output Fell 6 Pct in '77, Feb 6 p 15

U. S. CHAMBER OF COMMERCE
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25

U. S. COAST GUARD
Corrosion is Our National Financial Disgrace, by J. J. Obrzut, Apr 3 p 41

U.S. DEPARTMENT OF COMMERCE
Another $2.4 Billion U. S. Trade Deficit, Mar 20 p 14
April Deficit Widens U. S. Trade Gap, June 12 p 17
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf, May 15 p 44
Capital Spending Fades, June 5 p 36
Capital Spending Rises, Apr 10 p 57
Capital Spending Slips, Jan 16 p 32
Distress Signals, Mar 13 p 42
Economy Should Keep Scoring in '78-Kreps, Jan 23 p 12
Encourage Exports, Says Commerce's Weil, May 29 p 17
Energy Needs to Outpace Domestic Supply in 1980s, May 22 p 16
Executives Rein-In Capital Spending Plans, June 19 p 11
Facelift for Jobless Rate, Jan 9 p 21
Finally- Official Word on Product Liability, Apr 17 p 11
Financial Reports Conceal the Capital Shortfall, Jan 9 p 15
A Five-Year Profit Gain is Really a Loss, May 8 p 29
Humbugs Slow December Sales, Jan 23 p 25
Import Oil Flood Drowns U. S. Trade Balance, Feb 13 p 12
Indicators Go 10-2, Feb 20 p 34
Indicators Lead Nowhere, May 29 p 37
Indicators Run Late, Apr 17 p 34
Inflation is Incredible Hulk to Metalworking Companies, by J. D. Baxter, June 19 p 41
Loan Guarantee Program for Steel Unveiled, Apr 3 p 9
Machine Tool Shipments Seen Up 10 Pct this Year, Jan 23 p 11
Metalproducers Must Answer to Government, Jan 30 p MP-1
Metalworking is Mostly Up But Warning Flags Fly, Feb 20 p 13
Metalworking 1978 as Seen by 100 Analysts, by J. D. Baxter, Feb 20 p 25
Mighty Oaks from Little Acorns? Not this Way, by Gene Beaudet, Feb 13 p 3
Orders Hang On, May 8 p 41
Productivity Tumbles, May 15 p 36
Profits Decline to Record High-How's That, Again? by J. D. Baxter, Apr 17 p 25
Room for Wares, Mar 6 p 29
Sales Voted Down, June 26 p 31
Slow Sale at Retail, Apr 3 p 39
Surplus Predicted in U. S.-China Trade, June 26 p 11
Technologies, Not Products, to Get Export Controls, by E. W. Bowers, June 19 p 47
This Comes as a Surprise? by Gene Beaudet, Mar 6 p 3
Tin Stockpile Release Plan Raises Questions, Feb 27 p 13
Trigger Prices May be Steelmakers' Only Hope, Jan 23 p 12
U. S. Companies Plan More Spending Abroad, Apr 10 p 26
U. S. Trade Deficit Goes from Worse to Bad, May 8 p 11
Voluntary Standards: Everyone Wants In, by J. J. Obrzut, May 29 p 39
What U. S. Export Policy Must Contain, Apr 17 p 12
Why Isn't Plant Spending Doing a Lot Better? Mar 13 p 38
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

U. S. DEPARTMENT OF DEFENSE
Without Bolts and Screws, U. S. Security is Threadbare, by E. W. Bowers, Feb 20 p 28
Corrosion is Our National Financial Disgrace, by J. J. Obrzut, Apr 3 p 41

U. S. DEPARTMENT OF DEFENSE
NC-CAD CIM Report, by J. B. Pond, May 8 p 43
Technologies, Not Products, to Get Export Controls, by E. W. Bowers, June 19 p 47

U. S. DEPARTMENT OF ENERGY
Coal Gasification: Steel's Toughest Environment, by R. R. Irving, Mar 6 p 35
Electric Vehicles: Reality by Mid-1980s? June 26 p 39
Gould Inc. Gets Contract for Nickel-Zinc Battery, June 5 p 14
Hunt for Energy Turns to Cow Pasture, Apr 3 p 15
Refueling Fuel Cell Power Research, May 29 p 44
Slot Forge Furnace Design Fuels Energy-Savings, June 19 p 63

U. S. DEPARTMENT OF THE INTERIOR
Court Reviews Coal Leasing Plan, Mar 13 p 16
Government Launches Critical Study of Non-Fuel Minerals, Jan 9 p 11
Mining Interests Don't Like to Be Kept Waiting, June 19 p 89
What's Being Done About Off-Limits Minerals Lands? by E. W. Bowers, Mar 13 p 31

U. S. DEPARTMENT OF JUSTICE
Aluminum Producers Scramble to Add Capacity, Mar 13 p 89
'Shared Monopoly' Issue Survives, Despite Steel's Problems, Feb 6 p 39
Zinc Finds a Hard Way to Prove Its Point, Apr 3 p 63

U. S. DEPARTMENT OF LABOR
Double Digit Time, Again? Feb 27 p 26
Facelift for Jobless Rate, Jan 9 p 21
Factories are Rocked by Labor Cost Explosion, by J. J. Obrzut, June 5 p 34
Fewer Idle Hands, Mar 27 p 42
Founders Cast Lines for Government Understanding, Mar 6 p 10
Government to Station Inspectors in Coal Mines, May 8 p 18
Hard Act to Follow, Feb 20 p 34
Help-Wanted, Jobless Rates Continue to Disagree, Jan 16 p 13
Jobless Rate Up, June 19 p 50
Labor Does the Job, Jan 23 p 25
Price Increases Slow, Feb 6 p 49
Prices Rise Slower, June 19 p 50
Productivity Slackens, Feb 13 p 31
Productivity Tumbles, May 15 p 36
Spenders Lose Again, Apr 17 p 34
Steel and Copper Workers Eligible for Job Assistance, Apr 3 p 15
Tentative Coal Accord to Get Close Look, Mar 6 p 9
Three for the Money, Jan 16 p 32
Try Kumquats, Mar 27 p 42
U. S. Productivity Lag Still Stumps the Experts, June 26 p 24
Unemployment Down, May 22 p 36
White House Opposes Capital Gains Tax Cut, May 29 p 13
Wholesale Prices Climb, Jan 30 p 25
Wholesale Prices Soar, May 22 p 36
Wholesale Youth Movement, Jan 9 p 21
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

U. S. DEPARTMENT OF STATE
World Trade Enters a Year of Crisis, Jan 30 p 15

U. S. DEPARTMENT OF TRANSPORTATION
Carter's Coal Plan Needs $10 Billion Rail Investment, Apr 17 p 15
Rail Practices are Off Track, House is Told, Apr 10 p 23

U. S. DEPARTMENT OF THE TREASURY
"And After All We've Done for You", by Gene Beaudet, Apr 24 p 3
The Big Gun Behind Trigger Prices, by Tom Dulaney, Mar 6 p 21
Please, Fellows, Cut Out the Hype, by Gene Beaudet, Feb 6 p 3
The Real Test Begins for Trigger Prices, by E. W. Bowers and Tom Dulaney, Apr 10 p 51
Revised Trigger Prices Give Cause for Study, May 15 p 19
Service Centers Buying More Domestic Steel, Jan 30 p 13
Steel Summary: March is Coming in Like a Lamb, Jan 23 p 39
Treasury Aide Predicts Narrower Trade Deficits, June 19 p 11
Trigger Price Crackdown Coming Up Soon, June 26 p 11
Trigger Price Mechanism Gets Some Close Analysis, Feb 13 p 11
Trigger Price Questions? Here's Who to Call, Mar 13 p 14
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25
Ullman Hopes to Reduce Double Tax on Dividends, Feb 20 p 11
Why Carter Wanted Trigger, Not Quotas, Mar 20 p 13
Why Short-Term Credit is Getting More Active, May 22 p 29
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41
Will New Trigger Prices Hike Steel Imports? May 22 p 11

U. S. GEOLOGICAL SURVEY
Proposed Wilderness Area is Rich in Minerals, May 15 p 19

U. S. GROUT CO.
Non-Shrink Grout Saves Maintenance, Cut Downtime, Feb 27 p MP-24

U. S. INDUSTRIES, INC.
Reducing Debt Structure Gets Top Priority, Apr 17 p 23

U. S. METRIC BOARD
The Metric Boom Has a Faulty Legal Fuze, May 22 p 77

U. S. PHILIPS TRUST CO.
Managers Seek Best Way to Adjust for Inflation, by P. J. Cathey, Feb 6 p 47

U. S. STEEL CORP.
Business Raises Voice Against Carter's Proposals, Mar 20 p 12
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15
Economics, Technical Gains Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
EPA Lets Ohio Pollution Permit Stand, Jan 9 p 13
Government's Regulatory Game is Dirty Pool, May 15 p 35
Just Where Do Trigger Prices Misfire? Feb 6 p 11
Look for Steel Sheet Price Hike About Aug. 1, June 12 p 13
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58

New Coke Quench Data Jolts Steel Mills, by G. J. McManus, Jan 30 p MP-5
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43
Roesch Finds His Niche at U. S. Steel, Feb 20 p 16
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19
Slag, Fines and Fume - Steel's New Raw Material, by G. J. McManus and G. A. Weimer, May 22 p MP-15
Steel and Copper Workers Eligible for Job Assistance, Apr 3 p 15
Steel Hit Bottom in '77: Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Steel Price Increases Garner Mixed Reviews, Apr 10 p 17
Steel Starts Making Money: Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
Steel Summary: Price Hikes Ill-Timed? Jan 9 p 39
Steel Technology - The View from Japan, by G. J. McManus, Mar 27 p MP-15
Steelmakers are Bullish, But is '78 a China Shop? by G. J. McManus, June 5 p 40
Steelmakers Stretch to Overcome Coal Strike, Mar 20 p 9
Tentative Coal Accord to Get Close Look, Mar 6 p 9
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Tubing Capacity Swells as Technology Expands, June 12 p 16
What Makes Up an Award Winning Annual Report, Feb 27 p 16
Will New Trigger Prices Hike Steel Imports? May 22 p 11
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

USS ENGINEERS AND CONSULTANTS, INC.
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

U. S. STEEL SUPPLY DIV.
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

MORRIS K. UDALL
Copper Stockpiling Has Carter Support-Udall, Mar 20 p 65

AL ULLMAN
Capital Gains Tax Draws Supporters, June 26 p 11
Ullman Hopes to Reduce Double Tax on Dividends, Feb 20 p 11
When DISC Dies, So Will the Good That it's Done, by K. W. Bennett, Feb 6 p 37

ULTRASONICS
Electronics Helps Fastening Move from Art to Science, by R. R. Irving, June 26 p 32
High Technology Erupts on the NDT Scene, by R. R. Irving, May 15 p 39
Weld Costs Plummet with Ultrasonics, by D. A. Van Cleave, Apr 3 p 48
What It Takes to Get an N Stamp, by R. R. Irving, Jan 23 p 28

UNARCO INDUSTRIES, INC.
Pipe Producers Troubled by New Wave of Imports, by K. W. Bennett, Mar 20 p 25

UNDERSEA MINING
Is there Really Progress on Law-of-the-Sea? June 5 p 15
Nickel Accord Raises Law of the Sea Hopes, May 29 p 50
Prospects Dim for Sea Accord, Richardson Says, Feb 13 p 65

UNICO, INC.
NC-CAD/CIM Report, by J. B. Pond, June 5 p 45

UNIMATION INC.
Robot Ends Worker Fatigue in Hot PM Forging, Jan 23 p 32

UNION CARBIDE CORP.
Amended Clean Air Act Brings Clouds of Confusion, by G. J. McManus, May 1 p 25
Economics, Technical Gains More Power Electric Furnace Use, by G. J. McManus, Feb 27 p MP-13
The Electron Beam at Work in Detroit, by D. A. Van Cleave, Jan 9 p 26
Managers Seek Best Way to Adjust for Inflation, by P. J. Cathey, Feb 6 p 47
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9
Union Carbide, Domestic Ferrochrome Producers Clash, Jan 30 p 39
Wage and Price Controls are Set to Bloom, Apr 10 p 49

UNITED AIR SPECIALISTS, INC.
Entry-Level Computers Attract Manufacturing, by A. M. Greene, May 1 p 42

UNITED AUTO WORKERS
GM's Southern Hospitality is Absent, UAW Charges, June 12 p 14
VW Went Peacefully into UAW's Fold, June 26 p 14

UNITED KINGDOM
Corrosion is Our National Financial Disgrace, by J. J. Obrzut, Apr 3 p 41
North Sea Oil Will Turn British Economy Around, Jan 30 p 18

UNITED MINE WORKERS
Coal Miners Went on Strike and Life Went on as Usual, Apr 3 p 12
Coal Strike Inches Its Way Toward a Settlement, Jan 30 p 13
Coal Supplies Dwindle and UMW Negotiations Dawdle, Feb 20 p 11
Federal Mediators Join Bituminous Coal Talks, Jan 23 p 13
Government Puts Heat on for a Coal Settlement, Feb 27 p 11
Long Strike Weakens UAW Unity, Miller's Strength, Mar 20 p 12
Settlement Won't Burn Oil Coal's Basic Problems, by G. A. Weimer, Feb 27 p 21
Taft-Hartley Just Adds Fuel to Miners' Fire, Mar 13 p 15
Tentative Coal Accord to Get Close Look, Mar 6 p 9
When Coal Strike Ends, Its Costs Will Just Begin, Mar 27 p 11
Will "Miners Got 39" Be Labor's New Hit Song? Apr 10 p 17

UNITED STEELWORKERS OF AMERICA
Canada's Iron Ore Mines Crippled by Strikes, Apr 10 p 25
Labor Leaders, Managers Break Bread Together, June 12 p 14
We Now Have Two Ways to Watch Prices Rise, by Michael Marley, Mar 13 p 34
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

UNIVERSAL STEEL CORP.
Trigger Prices on the Firing Line, by K. W. Bennett, May 29 p 25

UNIVERSITY COMPUTING CO.
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

UNIVERSITY OF DETROIT
Iceberg Transport Could Open New Industry, by D. A. Van Cleave, Feb 27 p 31

UNIVERSITY OF ESSEX
North Sea Oil Will Turn British Economy Around, Jan 30 p 18

UNIVERSITY OF MICHIGAN
Computers Will Select Future Auto Materials, by K. W. Bennett, Feb 27 p 29
Consumers Overloaded? Apr 10 p 57
Equal Time, Mar 20 p 33
Life in the State Regulatory Jungle and How It Has Business in a Bind, by G. A. Weimer, Apr 10 p 65
Rabid Spending, June 12 p 35

UNIVERSITY OF WISCONSIN
Adopt Your Own Survival Kit for Products Liability, by R. R. Irving, Apr 10 p 99

URBAN AREAS
Why Business Keeps Turning Away from the Cities, Apr 3 p 16

NOBUHIKO USHIBA
Japan Ponders 10-Point Trade Pact with U. S., Jan 23 p 14

V

VALENITE DIV.
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

VALERON CORP.
Machining Stumbles Into Computer Era, by J. B. Pond, Feb 6 p 51

VALVE MANUFACTURERS ASSN.
Valve Industry Wants Tougher Dumping Laws, May 1 p 12
Valve Producers Cite Pressure from Imports, Feb 13 p 12

VALVES
Coal Gasification: Steel's Toughest Environment, by R. R. Irving, Mar 6 p 35
Industry Wants Tighter Buy-American Rules, Apr 3 p 14
Valve Industry Wants Tougher Dumping Laws, May 1 p 12
Valve Producers Cite Pressure from Imports, Feb 13 p 12
Valvemakers Switch to Plasma Hardfacing, Mar 6 p 43

RICHARD VAN BASSHUYSEN
What's Bringing Rotaries Back? by G. A. Weimer, May 8 p 31

THOMAS A. VANDERSLICE
It's Getting Harder to Get Power to the People, by G. J. McManus, Mar 6 p 26

CHARLES VANIK
Carter's Fastener Decision May Not Hold Up, Feb 27 p 14
Fastener Makers Defy Administration on Imports, by G. A. Weimer, June 5 p 31
Fastener Makers Won't Abandon Import Fight, May 8 p 11
Panel to Monitor Trade Between U. S. and Japan, May 8 p 18
Service Centers Buying More Domestic Steel, Jan 30 p 13
Steel's World is Troubled, Distributors are Told, June 12 p 13
Without Bolts and Screws, U. S. Security is Threadbare, by E. W. Bowers, Feb 20 p 28

VANSICKLE INDUSTRIES, INC.
Metals Merger Activity Continues to Swirl, May 1 p 10

JOHN VAUGHT
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58

VEGA SERVO-CONTROL, INC.
NC-CAD/CIM Report, by J. B. Pond, Mar 13 p 45
NC-CAD/CIM Report, by J. B. Pond, May 8 p 43

J. L. VENSEL
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

WILLIAM C. VERITY
The New Campus Radicals Work for Steel Companies, by G. A. Weimer, Apr 10 p 58
Rising Demand Stirs Hopes of a Steel Turnaround, by G. J. McManus, May 22 p 43

WILLIAM C. VERITY
Steelmakers are Bullish, But is '78 a China Shop? by G. J. McManus, June 5 p 40
Trigger Prices are Set, But Who's Under the Gun? Jan 16 p 28
Trigger Prices on Firing Line, by K. W. Bennett, May 29 p 25
Why World Trade Problems are Everybody's Problem - or Will Be Soon, Jan 2 p 41

HENDRIK VERMEULEN
Managers Seek Best Way to Adjust for Inflation, by P. J. Cathey, Feb 6 p 47

VERMONT YANKEE NUCLEAR POWER CORP.
Supreme Court Limits Nuclear Plant Challenges, Apr 24 p 16

MEL VERSON
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19

VERSON ALLSTEEL PRESS CO.
NC-CAD/CIM Report, by J. B. Pond, Apr 10 p 115
Sizing Up Carter's Impact on Metalworking, by E. W. Bowers, Jan 23 p 19

VERTOL DIV.
Army Gets High on Fiberglass Blades, June 26 p 39

VESUVIUS CRUCIBLE CO.
Continuous Casting Molds Steelmaking Efficiency, by G. J. McManus, Apr 24 p MP-15

VIBRATORY STRESS RELIEF
Vibratory Stress Relief: Black Magic or Cure-All? by R. R. Irving, Apr 17 p 56

RICHARD VIRZI
Why Service Centers' Role is More Critical Now, by K. W. Bennett, Apr 17 p 39

VOLKSWAGEN OF AMERICA, INC.
VW Went Peacefully into UAW's Fold, June 26 p 14
Will the Japanese Follow VW to the United States? May 1 p 13

VOLKSWAGONWERK AG
Will the Japanese Follow VW to the United States? May 1 p 13

JEAN VUILLEQUEZ
Copper Faces a Decisive Second Half of '78, by R. J. Regan, June 19 p 41

W

WAGES AND PRICES
Can You Believe These Guys? by Gene Beaudet, Mar 13 p 3
Costs, Prices Run Fast, But Productivity Walks, by J. D. Baxter, Apr 3 p 35
Factories are Rocked by Labor Costs Explosion, by J. J. Obrzut, June 5 p 34
Meany Stalls Carter's Fight Against Inflation, May 22 p 11
Now, Let's See What Happens, by Gene Beaudet, June 26 p 3
OK, Call the Cops . . . But on Whom? by Gene Beaudet, May 15 p 3
"Renewal of Inflationary Pressures Would be a Painful Reappraisal", Mar 31 p 41
Wage and Price Controls are Set to Bloom, Apr 10 p 49
We Now Have Two Ways to Watch Prices Rise, by Michael Marley, Mar 13 p 34
Why Mr. Meany Was Half Right, by Gene Beaudet, May 22 p 3

W. L. WALLACE
Steelmakers Work Their Way Around Slab Reheating, by G. J. McManus, June 19 p MP-9

WALLACE & WASHBURN, INC.
A Safe Foundry is Hard to Produce, Apr 24 p MP-3

BERTRAM M. WALLER
Energy Savings Begin with Building's Design, by P. J. Cathey, Apr 10 p 53

GLENN WALTERS
Office Furniture Makers Enjoy Plush Surroundings, by K. W. Bennett, Jan 23 p 22

WALWORTH CO.
Industry Wants Tighter Buy-American Rules, Apr 3 p 14

WARNER ELECTRIC BRAKE & CLUTCH CO.
Metalworking Racks Up Record Sales and Earnings, Feb 13 p 21

WARNER & SWASEY CO.
Auto's Weight Loss is Machine Tool's Gain, Apr 3 p 9
Machine Tool Orders Up Sharply in First Quarter, May 1 p 9
NC-CAD/CIM Report, by J. B. Pond, June 5 p 45

WASHINGTON STEEL CORP.
Is Specialty Steel Sending a Signal? by G. J. McManus, May 22 p 59

WASTE MANAGEMENT
Bethlehem Trap Catches Coal Coking Ammonia, Mar 27 p MP-6
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut, Feb 20 p 39

Ceramic Containers Store Nuclear Waste. Jan 9 p 32
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett. Apr 3 p 27
NARI, Bureau of Mines Sign Mutual Aid Accord. June 19 p 18
Recyclers Can Help When Copper Runs Low. Mar 27 p 79
Scrap Aluminum Pressed into Metalworking Service. June 26 p 40
Scrap Industry's Top Grade - Process Technology. by K. W. Bennett. Jan 30 p MP-11
Slag, Fines and Fume - Steel's New Raw Material. by G. J. McManus and G. A. Weimer. May 22 p MP-15
Total Aluminum Recycling System Aids Steelmakers. by G. A. Weimer. June 19 p MP-23

WATER POLLUTION
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut. Feb 20 p 39
Clean Water and Air Cost an Arm and a Leg. Mar 27 p MP-3
Clean Won't Come Cheap for Copper, Study Says. Mar 20 p 62
EPA Lets Ohio Pollution Permit Stand. Jan 9 p 13
New Coke Quench Data Jolts Steel Mills. by G. J. McManus. Jan 30 p MP-5
New EPA Water Rules Displease Metal Platers. Mar 27 p 17
The Sky Is Falling on Copper Producers. by F. W. Bowers. Mar 27 p 39

WATER QUALITY
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut. Feb 20 p 39

C. S. WATSON, SR.
Why Service Centers' Role is More Critical Now. by K. W. Bennett. Apr 17 p 39

JOHN WEBER
NC-CAD CIM Report. by J. B. Pond. May 8 p 43

WEBER NC SYSTEMS, INC.
NC-CAD CIM Report. by J. B. Pond. May 8 p 43

JOHN J. WEIGER
Don't Compare Merger Surge with that of the 1960's. May 1 p 21

FRANK WEIL
Encourage Exports, Says Commerce's Weil. May 29 p 17
Technologies, Not Products, to Get Export Controls. by E. W. Bowers. June 19 p 47
What U. S. Export Policy Must Contain. Apr 17 p 12
Why World Trade Problems are Everybody's Problem - or Will Be Soon. Jan 2 p 41

HELMUT G. WEISSEMBACH
Double Your Output by High-Speed Broaching. by J. J. Obrzut. June 5 p 67

R. G. WELCH
Service Centers Buying More Domestic Steel. Jan 30 p 13
Service Centers Display New-Found Strength. June 12 p 59
Service Centers Get Stuck in Year's First Months. Mar 13 p 93
Service Centers - a Good '77 - Prospects of Better '78. Feb 6 p 89
Steel Service Centers Prepare for the Best. Apr 17 p 81
Trigger Prices Mechanism Gets Some Close Analysis. Feb 13 p 11
Why Service Centers' Role is More Critical Now. by K. W. Bennett. Apr 17 p 39

WELDED STEEL TUBE INSTITUTE
Pipe Producers Troubled by New Wave of Imports. by K. W. Bennett. Mar 20 p 25

WELDING
Aluminum Shows Auto Market Proof of Weldability. May 1 p 46
Dimetrics Signs License for Soviet Technology. Apr 24 p 15
The Electron Beam at Work in Detroit. by D. A. Van Cleave. Jan 9 p 26
High-Frequency Welding Keeps Poles Together. June 19 p MP-3
Valvemakers Switch to Plasma Hardfacing. Mar 6 p 43
Weld Costs Plummet with Ultrasonics. by D. A. Van Cleave. Apr 3 p 48

WELDING RESEARCH COUNCIL
Adhesives Poised to Steal More of Joining Market. by J. J. Obrzut. Apr 24 p 46

WELDON HYDRAULICS, INC.
"Lowering the Boom" on Coke Oven Emissions. Mar 27 p MP-35

DAVID WERDEN
Entry-Level Computers Attract Manufacturing. by A. M. Greene. May 1 p 42

WESTERN ELECTRIC CO.
NC-CAD CIM Report. by J. B. Pond. Jan 16 p 35
Two Lasers are Better than One. Jan 30 p 29

WESTERN GEAR CORP.
Billet Grinding Moves into High Speed Operation. by C. T. Post. Apr 24 p MP-25

WESTERN METAL AND TOOL EXPOSITION AND CONFERENCE
Machine Tool Makers Like Near-Term Outlook. Apr 10 p 28

WESTERN MINING CORP.
Competition is Killing Nickel. by R. J. Regan. May 15 p 29

LAWRENCE R. WESTIN
Will Detroit Call Metalworking's Game? by G. A. Weimer. Jan 30 p 20

WESTINGHOUSE ELECTRIC CORP.
Energy Costs by 1985: Energy Mix by 2000 A. D.. Apr 3 p 14
It's Getting Harder to Get Power to the People. by G. J. McManus. Mar 6 p 26
NC-CAD CIM Report. by J. B. Pond. Mar 13 p 45
NC-CAD CIM Report. by J. B. Pond. May 8 p 43
New Charge for Coal Mines. May 1 p 41
Valvemakers Switch to Plasma Hardfacing. Mar 6 p 43

WHARTON ECONOMIC FORECASTING ASSOCIATES
After a Wild and Crazy Quarter, a 2-Year Hangover. June 26 p 12
Riding Economy Will Be Safe, But Not Smooth. Mar 27 p 15

WHEELABRATOR-FRYE, INC.
Foundry Equipment Makers Remold Their '78 Outlook. by K. W. Bennett. May 22 p 31
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett. Apr 3 p 27

WHEELING-PITTSBURGH STEEL CORP.
OK, Call the Cops . . . But on Whom? by Gene Beaudet. May 15 p 3
Rising Demand Stirs Hopes of a Steel Turnaround. by G. J. McManus. May 22 p 43
Steel Hit Bottom in '77; Nonferrous Up and Down. by G. J. McManus and R. J. Regan. Feb 13 p 27
Steel Starts Making Money; Nonferrous Keeps '77 Pace. by G. J. McManus and R. J. Regan. May 15 p 32
Steel Summary: Price Hikes Ill-Timed? Jan 9 p 39

THOMAS WHITAKER
Why Service Centers' Role is More Critical Now. by K. W. Bennett. Apr 17 p 39

MALCOLM E. WHITE
NC-CAD CIM Report. by J. B. Pond. Mar 13 p 45
NC-CAD CIM Report. by J. B. Pond. May 8 p 43

WHITE MOTORS, INC.
Spring Life Signs Point to Fall Farm Machine Harvest. by K. W. Bennett. May 1 p 32

ROBERT R. WHITE
NC-CAD CIM Report. by J. B. Pond. Mar 13 p 45

WHITING CORP.
Economics, Technical Gains Power Electric Furnace Use. by G. J. McManus. Feb 27 p MP-13

WHOLESALE INDUSTRY
Try Kumquats. Mar 27 p 42
Wholesale Prices Soar. May 22 p 36

RICHARD G. WIDMAN
McKee Builds Its Personnel the Way It Builds Industry. by G. A. Weimer. Apr 3 p 32
Plant Construction Work May Boom in 1980's. May 29 p 17

G. EDWARD WILKA
NC-CAD CIM Report. by J. B. Pond. Mar 13 p 45

FRANK H. WILKSTROM
Business Raises Voice Against Carter's Proposals. Mar 20 p 12

WILKSTROM MACHINES INC.
Business Raises Voice Against Carter's Proposals. Mar 20 p 12

WILLIAMS CRUSHER AND PULVERIZING CO.
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett. Apr 3 p 27

HAROLD M. WILLIAMS
Financial Reports Conceal the Capital Shortfall. Jan 9 p 15

HARRISON WILLIAMS
Tentative Coal Accord to Get Close Look. Mar 6 p 9

ROBERT WILLIAMS, SR.
Is Recycling Metalworking's Next Cinderella Market? by K. W. Bennett. Apr 3 p 27

WILLIAM D. WILLIAMS
What Makes Up an Award Winning Annual Report. Feb 27 p 16

CYNTHIA F. WILSON
What's Being Done About Off-Limits Minerals Lands? by F. W. Bowers. Mar 13 p 31

ROBERT E. WILSON
Plate Fabricators: Deep in the Heart of Houston. by R. R. Irving. May 8 p 59

FRANK WINDERS
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer. Jan 30 p 20

JAMES WINEMAN
The Electron Beam at Work in Detroit. by D. A. Van Cleave. Jan 9 p 26

WIRE
Large-Diameter Wire Serves Good Growing Markets. June 19 p 19
The Real Test Begins for Trigger Prices. by F. W. Bowers and Tom Dulaney. Apr 10 p 51

WIRE ROD
Steel Summary: Triggers Spur Duels for Demand. Apr 3 p 61

WISCONSIN STEEL CO.
Continuous Casting Molds Steelmaking Efficiency. by G. J. McManus. Apr 24 p MP-15

DENNIS E. WISNOSKY
NC-CAD CIM Report. by J. B. Pond. May 8 p 43

TERRY WISSMAN
Interactive Graphics Mates with NC Flame Cutting. by R. R. Irving. Feb 13 p 46

C. W. WITHAM
Pultrusion: Composites' Road to Mass Production. by C. T. Post. Jan 30 p 27

ALAN WOOD STEEL CO.
Alan Wood Staves Off Liquidation for Now. June 19 p 93

HARLESTON WOOD
Alan Wood Begins 'Life or Death' Sale. by Tom Dulaney. Mar 20 p 34
Alan Wood Staves Off Liquidation for Now. June 19 p 93

R. J. WOOLEY
Can Industry Afford Pollution Control's Costs? by J. J. Obrzut. Feb 20 p 39

M. M. WOOLWINE
Plate Fabricators: Deep in the Heart of Houston. by R. R. Irving. May 8 p 59

WORK IN AMERICA INSTITUTE, INC.
U. S. Productivity Lag Still Stumps the Experts. June 26 p 24

WORTHINGTON SERVICE CORP.
The Big Decision Behind Major Equipment Breakdowns. Jan 16 p 47

GROVER WRENN
New Copper Standard Will Hit Copper Hard. May 15 p 20

MARSHALL WRIGHT
Faton's Interest in Air Bag Market Evaporates. Jan 30 p 15

WYATT INDUSTRIES, INC.
Plate Fabricators: Deep in the Heart of Houston. by R. R. Irving. May 8 p 59

WYMAN-GORDON CO.
Aircraft Makers Prepare for Smooth Takeoff. by B. H. LeCerf. June 12 p 32

X

XMN FARM EQUIPMENT CO., INC.
Imports Start Cropping Up in Farm Equipment. May 1 p 10

X-RAY DIFFRACTION ANALYSIS
Coil Coaters Seek a 'Perfect' Galvanized Steel. by J. J. Obrzut. May 1 p 37

X-RAY INSPECTION
Consumer-Demands Change NDT Practice. Jan 30 p 32
High Technology Erupts on the NDT Scene. by R. R. Irving. May 15 p 39

X-RAYS
Hand-Held X-Ray Device. Feb 13 p 53

Y

KENICHI YAMAMOTO
What's Bringing Rotaries Back? by G. A. Weimer. May 8 p 31

YAMOTO STEEL WORKS LTD.
Japan Phases Out Last Open Hearths. Jan 30 p MP-1

LO LYIN
Hand-Held X-Ray Device. Feb 13 p 53

WILLIAM F. YEVISNER
Don't Short Change R & D Spending - It Pays Off. Feb 27 p 16
Electric Vehicles: Reality by Mid-1980's? June 26 p 39

YOSHITANE YOKOTE
Steel Technology - The View from Japan. by G. J. McManus. Mar 27 p MP-15

ARTHUR YOUNG & CO.
Needed by the Board - an Audit Committee. Apr 10 p 49

JOHN YOUNG
Can Lightweight Plastics Continue Heavyweight Push? by B. H. LeCerf. May 15 p 44
Will Detroit's Slump Call Metalworking's Game? by G. A. Weimer. Jan 30 p 20

Z

ZAIRE
Zinc's Bad News Could Also be Copper's. June 12 p 58

WILLIAM E. ZEITER
The Metric Boom Has a Faulty Legal Fuse. May 22 p 77

EGON ZEHNDER INTERNATIONAL
From Boston to Berlin, Job Market Picks Up. May 15 p 13

CARL ZIMMERER
Merger Activity is Up on Worldwide Basis. Mar 20 p 22
Metalworking's Merger Fever Hits New High. by P. J. Cathey. June 12 p 23

JOSEPH ZIMMERMAN
Copper Movement Not Enough to Spur Price Improvement. Jan 23 p 39

ZINC
Don't Hold Your Breath Where Zinc's Concerned, May 8 p 91
Don't Let Zinc Prices Fall to the Bottom, ITC Told, Mar 20 p 61
Has Lead Learned from Zinc's Mistakes? May 15 p 57
Import Redress Will Take Time for Zinc Producers, Jan 16 p 69
Slim Outlook Keeps Zinc Stocks Under Control, May 1 p 55
Snubbed by ITC, Zinc Turns Up Its Price, June 19 p 87
Steel Hit Bottom in '77; Nonferrous Up and Down, by G. J. McManus and R. J. Regan, Feb 13 p 27
Steel Starts Making Money; Nonferrous Keeps '77 Pace, by G. J. McManus and R. J. Regan, May 15 p 32
Zinc Die Casting Markets Hold Steady, June 19 p 95
Zinc Finds a Hard Way to Prove Its Point, Apr 3 p 63
Zinc Imports Blamed for St. Joe Layoffs, Mar 13 p 91
Zinc Imports Drop, But Shipments Still Lag, May 29 p 50
Zinc Life Signs are Hard to Find, Apr 24 p 64
Zinc Prices Keep Sinking and Sinking, Mar 6 p 65
Zinc's Bad News Could Also be Copper's, June 12 p 58

ZINC INSTITUTE
Zinc Die Casting Markets Hold Steady, June 19 p 95

FRITZ ZSCHERING
GDR Technology Land in U. S. with Some Fanfare, May 29 p 45

ROBERT L. ZURBACH
Service Centers Designed for Fast Service, by C. T. Post, Mar 20 p 46

W. TOM ZURSCHMIEDE, JR.
Fastener Makers Defy Administration on Imports, by G. A. Weimer, June 5 p 31

AUTHOR

B

BARKS, J. V.
Construction's Next Build-Up Will be Harder to See, May 29 p 28

BAXTER, J. D.
Costs, Prices Run Faster, But Productivity Walks, Apr 3 p 35
Inflation is Incredible Hulk to Metalworking Companies, June 19 p 41
Metalworking Boosts Returns on Sales and Assets, May 22 p 39
Metalworking 1978 as Seen by 100 Analysts, Feb 20 p 25
Profits Decline to Record High - How's That, Again? Apr 17 p 25

BEAUDET, GENE
"And After All We've Done for You", Apr 24 p 3
As Sound As . . . You Bet! Jan 23 p 3
Bearing Down in the Right Place, Mar 20 p 3
Business Issue of the Year . . . and Beyond, Jan 2 p 3
Can You Believe These Guys? Mar 13 p 3
A Goodbye Man Speaks Out, Feb 27 p 3
If This Be Unpatriotic . . . Then I'll Eat My Hat, June 12 p 3
Is Getting the Multiplier Up a Downer? June 19 p 3
Is the 'Me' Generation to Blame? Apr 17 p 3
The Message You Didn't Get, May 1 p 3
Mighty Oaks from Little Acorns, Not this Way, Feb 13 p 3
Mind Your Own Business, Please, Feb 20 p 3
Not By Love Alone, Mar 27 p 3
Now, Let's See What Happens, June 26 p 3
OK, Call the Cops . . . But on Whom? May 15 p 3
Please, Fellows, Cut Out the Hype, Feb 6 p 3
The Postponable Recession, Apr 10 p 3
R & D A Matter of Survival? You Bet! Jan 30 p 3
So, Color Me Predictable, Jan 9 p 3
Sometimes the Answers Aren't That Easy, May 29 p 3
This Comes as a Surprise? Mar 6 p 3
Thoughts Triggered by Reference Prices, Jan 16 p 3
Who to Believe? Why Not You? Apr 3 p 3
Who Repealed the First Amendment, Anyway? May 8 p 3
Why Mr. Meany Was Hall Right, May 22 p 3
Why Not Give Inflation a Chance? June 5 p 3

BENNETT, K. W.
Bethlehem Unveils Marvel in Steel Technology, June 19 p MP-15
Communications and Costs Can Alter the Bottom Line, June 26 p 28
Computers Will Select Future Auto Materials, Feb 27 p 29
Don't Worry About Production; Watch Maintenance Costs, Jan 30 p 23
Foundry Equipment Makers Remold Their '78 Outlook, May 22 p 31
Government Hamstrings Private R & D, Feb 27 p 18
Is Recycling Metalworking's Next Cinderella Market? Apr 3 p 27
Office Furniture Makers Enjoy Plush Surroundings, Jan 23 p 22
Pipe Producers Troubled by New Wave of Imports, Mar 20 p 25
Scrap Industry's Top Grade - Process Technology, Jan 30 p MP-11
Spring Life Signs Point to Fall Farm Machine Harvest, May 1 p 32
Trigger Prices on the Firing Line, May 29 p 25
When DISC Dies, So Will the Good That it's Done, Feb 6 p 37
Why Service Centers' Role is More Critical Now, Apr 17 p 39

BOWERS, E. W.
Chrysler Tank Subcontract Causes Concern, Apr 17 p 30
The New Eximbankers Foreclose on Apathy, Feb 13 p 22
The Real Test Begins for Trigger Prices, Apr 10 p 51
Sizing Up Carter's Impact on Metalworking, Jan 23 p 19
The Sky Is Falling on Copper Producers, Mar 27 p 39
Technologies, Not Products, to Get Export Controls, June 19 p 47
War and Peace Study Plots Aluminum's Future, May 1 p 30
What's Being Done About Off-Limits Minerals Lands? Mar 13 p 31
Without Bolts and Screws, U. S. Security is Threadbare, Feb 20 p 28

C

CATHEY, P. J.
Energy Savings Begin with Building's Design, Apr 10 p 53
Managers Seek Best Way to Adjust for Inflation, Feb 6 p 47
Metalworking's Merger Fever Hits New High, June 12 p 23
Steel Hit Bottom in '77; Nonferrous Had Mixed Year, Apr 24 p 35

D

DULANEY, T. C.
Alan Wood Begins a 'Life or Death' Sale, Mar 20 p 34
Ask Not for Whom the Gavel Tolls, May 29 p 33
The Big Gun Behind the Trigger Prices, Mar 6 p 21
The Real Test Begins for Trigger Prices, Apr 10 p 51

G

GREENE, A. M.
Advanced Materials Given Room to Fly in Aerospace, June 19 p 53
Electric Furnace Efficiency Gets a Lift with Air Curtain, Sept. 12 p MP-28
Entry-Level Computers Attract Manufacturing, May 1 p 42

I

IRVING, R. R.
Adopt Your Own Survival Kit for Products Liability, Apr 10 p 99
Coal Gasification: Steel's Toughest Environment Yet, Mar 6 p 35
Electronics Helps Fastening Move from Art to Science, June 26 p 32
High Technology Erupts on the NDT Scene, May 15 p 39
Plate Fabricators: Deep in the Heart of Houston, May 8 p 59
Government-Industry System Waves the Flag on Defects, Jan 16 p 54
Interactive Graphics Mates with NC Flame Cutting, Feb 13 p 46
QC Circles Spur Productivity, Improve Product Quality, June 5 p 61
Quality Engineering Can be a Real Profit Center, Apr 17 p 53
Vibratory Stress Relief: Black Magic or Cure-All? Apr 17 p 56
What It Takes to Get an N Stamp, Jan 23 p 28
What Product Liability is Doing to Larger Companies, Mar 20 p 39
Why British Leyland is Sold on Electronic Bolt Tightening, June 12 p 44

L

LECERF, B. H.
Advanced Materials Given Room to Fly in Aerospace, June 19 p 53
Aircraft Makers Prepare for Smooth Takeoff, June 12 p 32
Beryllium Nickel Strip Gets Better with Age, May 22 p 84
Can Lightweight Plastics Continue Heavyweight Push? May 15 p 44
Chromium Substitutes Worth a Second Look, May 29 p 42
Palletizing . . . Hot Trend in Automatic Parts Handling, Apr 24 p 43

MC

MCMANUS, G. J.
Amended Clean Air Act Brings Clouds of Confusion, May 1 p 25
Continuous Casting Molds Steelmaking Efficiency, Apr 24 p MP-15
Economics, Technical Gains Power Electric Furnace Use, Feb 27 p MP-13
Getting Super Clean Sheet is Steel's New Goal, Mar 27 p MP-9
Is Specialty Steel Sending a Signal? May 22 p 59
It's Getting Harder to Get Power to the People, Mar 6 p 26
New Coke Quench Data Jolts Steel Mills, Jan 30 p MP-5
Rising Demand Stirs Hopes of a Steel Turnaround, May 22 p 43
Slag, Fines and Fumes - Steel's New Raw Material, May 22 p MP-15
Steel Hit Bottom in '77; Nonferrous Up and Down, Feb 13 p 27
Steel Starts Making Money; Nonferrous Keeps '77 Pace, May 15 p 32
Steel Technology - The View from Japan, Mar 27 p MP-15
Steelmakers are Bullish, But is '78 a China Shop? June 5 p 40
Steelmakers Work Their Way Around Slab Reheating, June 19 p MP-9
Why World Trade Problems are Everybody's Problem - or Will be Soon, Jan 2 p 41
World Steel Trade: The View from Japan, Mar 27 p 29

M

MARLEY, M.
We Now Have Two Ways to Watch Prices Rise, Mar 13 p 34

O

OBRZUT, J. J.
Add Carbon Black to Plastic for Direct Plateability, Jan 30 p 30
Adhesives Poised to Steal More of Joining Market, Apr 24 p 46
The Big Decisions Behind Major Equipment Breakdowns, Jan 16 p 47
Can Industry Afford Pollution Control's Costs? Feb 20 p 39
Coil Coaters Seek a 'Perfect' Galvanized Steel, May 1 p 37
Corrosion is Our National Financial Disgrace, Apr 3 p 41
Double Your Output by High-Speed Broaching, June 5 p 67
Factories are Rocked by Labor Cost Explosion, June 5 p 34
Noise Control Among Forgers is More than a Whisper, Mar 13 p 65
Some Thought About Cleaning Steel for Painting, Mar 27 p 52
Voluntary Standards: Everyone Wants In, May 29 p 39

P

POND, J. B.
Automatic Hot-Forming Takes a Quantum Jump, Mar 20 p 43
Latest Graphics Systems Recast CAD/CAM Concepts, June 12 p 37
Machining Stumbles Into Computer Era, Feb 6 p 51
NC-CAD/CIM Report, Apr 10 p 115
NC-CAD/CIM Report, Feb 13 p 33
NC-CAD/CIM Report, Jan 16 p 35
NC-CAD/CIM Report, June 5 p 45
NC-CAD/CIM Report, Mar 13 p 45
NC-CAD/CIM Report, May 8 p 43
Palletizing . . . Hot Trend in Automatic Parts Handling, Apr 24 p 43

POST, C. T.
Ball Corp. Makes Certain Its Workers Understand, June 12 p 28
Billet Grinding Moves into High Speed Operation, Apr 24 p MP-25
Pultrusion: Composite's Road to Mass Production, Jan 30 p 27
Service Center Designed for Fast Service, Mar 20 p 46

R

REGAN, R. J.
Across the Atlantic, Aluminum Stays Afloat, Apr 24 p 27
Carribean Bauxite Loses Ground in U. S. Market, Mar 6 p 30
Competition is Killing Nickel, May 15 p 29
Copper Faces a Decisive Second Half of '78, June 19 p 41
Copper's Latest Plea is a Loaded Question, Mar 25 p 29
Life with Copper Takes On New Meaning, Feb 6 p 41
Magnesium Has the Price Other Metal Producers Envy, Mar 27 p 35
Steel Hit Bottom in '77; Nonferrous Had Mixed Year, Apr 24 p 35
Steel Hit Bottom in '77; Nonferrous Up and Down, Feb 13 p 27
Steel Starts Making Money; Nonferrous Keeps '77 Pace, May 15 p 32
What's New for Aluminum in '78, Jan 16 p 22

V

VAN CLEAVE, D. A.
ECD Fights the Costly Burr, Mar 13 p 59
The Electron Beam at Work in Detroit, Jan 9 p 26
Iceberg Transport Could Open New Industry, Feb 27 p 31
New Family Adopts E-Brite Stainless, Mar 27 p 47
Playing the "What If" Game in Future Auto Design, Feb 13 p 49
Weld Costs Plummet with Ultrasonics, Apr 3 p 48

W

WEIMER, G. A.
Battery Breakthrough Recharges Electric Auto, Apr 24 p 32

Cold Compaction Broadens Market for Titanium PM, May 8 p 70
Copperweld Expects All Its Tubing to Score Tens, May 8 p 38
Core Crushing: A Problem in Big Bearing Design, June 5 p 70
Driving Market Forces Keep Diesels Going, June 26 p 21
Fastener Makers Defy Administration on Imports, June 5 p 31
Life in the State Regulatory Jungle and How It Has Business in a Bind, Apr 10 p 65
McKee Builds Its Personnel the Way It Builds Industry, Apr 3 p 32
Making Success Out of Risk in a Crisis Marketplace, Jan 9 p 16
The New Campus Radicals Work for Steel Companies, Apr 10 p 58
Will Detroit's Slump Call Metalworking's Game? Jan 30 p 20
Settlement Won't Burn Off Coal's Basic Problems, Feb 27 p 21
Slag, Fines and Fume - Steel's New Raw Material, May 22 p MP-15
They Designed a Vehicle to Curb Coke Emissions, Mar 27 p MP-22
Total Aluminum Recycling System Aids Steelmakers, June 19 p MP-23
What's Bringing Rotaries Back? May 8 p 31